



TEXAS A&M  
UNIVERSITY at QATAR

# Texas A&M University at Qatar

ANNUAL REPORT 2007–2008





**TEXAS A&M**  
UNIVERSITY *at* QATAR

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# Message from the Dean



Dr. Mark Weichold  
*Dean and CEO*

**30 June 2008**

Texas A&M University at Qatar has enjoyed a banner year. Our success outpaced our highest expectations, and I am proud to report that as the University enters its sixth year in Qatar, we have renewed our deep-rooted commitment to our core missions of teaching, research and service.

Several hallmarks define our achievements in the 2007–2008 academic year, but none rival the significance of the University yielding its first graduates in Qatar. In December, two chemical engineers completed their studies, and in May, the University awarded diplomas to 30 engineers. Those Aggie engineering graduates have begun their careers, and everyone at Texas A&M at Qatar shares in the satisfaction of having helped shape the minds and character of the young men and women who will engineer tomorrow. I have high hopes and expectations for many more classes of Aggie engineers graduating in Qatar in the years to come.

Every aspect of Texas A&M at Qatar has forward momentum and a positive outlook, and our future is full of promise.

## **Academics**

The University's campus in Qatar has undergone remarkable changes and growth in the five years since it opened. Our student enrollment has grown from just 29 in our first year to an anticipated enrollment of 350 this fall, and the number of faculty has risen from seven to 75 as our academic offerings and research efforts increased.

The academic program grew by more than 20 percent in 2007–2008, and I anticipate that it will grow by another 15 percent in the coming year. This growth can be attributed not only to the increase in our student body, but also to greater need for classes among seniors preparing to graduate.

We anticipate another class of outstanding new students this fall. The test scores and academic credentials of our applicants increase every year and so, too, does the competition for admission. The freshmen won't be the only students learning their way around this year—we will inaugurate a new study-abroad program this fall as a group of Aggies from College Station come to study in Doha for the semester. I am excited and quite optimistic about the outcome of such a program — both for students in Doha and for the students visiting from College Station.

The University's academic programs have enabled Texas A&M at Qatar to make significant inroads to the community through our outreach and service initiatives. Earlier this year the University hosted a math olympiad



in the Texas A&M Engineering Building, and I am exploring ways the University can partner with practicing engineers in Doha to work with students in high schools. I hope projects such as that will lead to a full-scale summer engineering enrichment project for high school students.

Perhaps the most notable change to our academic operations will come in January when the University begins its graduate program in Doha. We plan to offer two degrees—master of engineering and master of science—and we anticipate significant interest in and demand for these programs. The details of the graduate program are still being finalized and we will publicize that information when it is complete.

### **Research**

Texas A&M at Qatar is firmly established in Qatar and the region not only because of its academic programs, but also because of the advanced research and community service offered by the University. The research program at Texas A&M at Qatar has received significant interest from local industry: Our faculty have research projects with BP, Qatar Petroleum, Qatar Telecom, RasGas and Shell, among others.

Research efforts were given a tremendous boost in November, however, when awards for the first cycle of National Priority Research Program (NPRP) grants were announced. More than 20 of the winning grants included Texas A&M and Texas A&M at Qatar faculty as investigators, and the grants totaled more than \$12 million. Although the numbers alone are impressive, I'm equally proud of the diversity represented in the winning grants—they encompass a broad array of engineering, science and mathematics research.

### **Operations**

The new Texas A&M Engineering Building helped ease our growing

pains. We began the year in July 2007 amid our first few days in the new building, but its corridors and classrooms were quiet for only a short time. By mid-August we had welcomed 98 new Aggies—the University’s largest freshman class in Qatar—and when the fall semester started our academic program was fully operational for the first time.

*My goal is to continue cultivating the University’s reputation in Qatar and throughout the world and to establish Texas A&M at Qatar as a destination for students and scholars alike.*

We successfully filled key leadership positions over the past year, and January was the first time in my tenure as dean and CEO that no position on the executive staff was filled by an interim. Dale Cassidy joined the University as assistant dean for finance and administration in November, and in January Prasad Enjeti filled the vacancy for associate dean for academic affairs. I have tremendous confidence in the University’s leadership and I am certain that this team will be exceptionally effective.

In the coming year I hope to work with faculty and staff and with Qatar Foundation to develop solutions that will enable the University to make greater progress in Qatar. I am pursuing research start-up money for faculty and the support of postdoctoral research associates. We also are exploring the benefits of common-use equipment infrastructure. My goal is to see the research program crystallize over the coming year and give way to a full-scale engineering research center.

**T**exas A&M at Qatar has enjoyed spectacular accomplishments and progress in the past year. Our move to the Texas A&M Engineering Building represents our transition from a startup to a mature organization—the building provides not only important space for teaching, but it houses the laboratories in which we are conducting advanced and meaningful research. And now that Texas A&M at Qatar has former students working throughout Qatar and the region, our stock is on the rise.

The demand for engineers is at an all-time high, and Texas A&M at Qatar is educating engineers who can work to solve some of the world’s most pressing problems. My goal is to continue cultivating the University’s reputation in Qatar and throughout the world and to establish Texas A&M at Qatar as a destination for students and scholars alike.



# Milestones 2007–2008

*A summary of some of the achievements of Texas A&M University at Qatar during the year 2007–2008*

**June, July and August 2007** Texas A&M at Qatar begins the move to the Texas A&M Engineering Building to prepare for the upcoming fall semester.

**August 2007** Texas A&M at Qatar has the largest class of incoming students—98—and the largest faculty since the University opened its Doha campus in 2003.

**September 2007** Society of Petroleum Engineers president Dr. Abdul-Jaleel Al Khalifa offers inspiration to students, faculty and staff during remarks at academic convocation on 11 Sept.

**September 2007** RasGas signs a major research agreement to develop wireless technology for downwell drilling equipment.

**October 2007** Texas A&M at Qatar faculty win an astounding 20 grants totaling \$12 million in the first cycle of the National Priorities Research Program.

**November 2007** National Instruments recognizes Texas A&M at Qatar as the Virtual Instrumentation Center for Excellence on 21 Nov.

**December 2007** BP and Texas A&M at Qatar sign a research agreement for a project to study spill behavior and safety for liquefied natural gas.

**December 2007** ConocoPhillips officials present a check to the University for QR 250,000 (about \$70,000) for scholarships.

**December 2007** The Texas A&M at Qatar community recognizes its first two graduates at a celebration in their honor on 17 Dec.

**January 2008** Texas A&M at Qatar undergoes a mock ABET review to prepare for an official review later in the year.

**March 2008** Aggies from College Station visit Doha and Aggies from Doha visit College Station for student leadership exchange trips.

**April 2008** Texas A&M at Qatar celebrates Aggie Muster on 21 April.

**May 2008** Texas A&M President Dr. Elsa Murano and a delegation of University officials visit Doha to attend Education City senior convocation.

**May 2008** Thirty Aggies participate in the Education City senior convocation on 6 May along with graduating seniors from other Education City universities.

**May 2008** Texas A&M at Qatar awards diplomas to 30 Aggie engineers during the University's first commencement exercises in Doha.

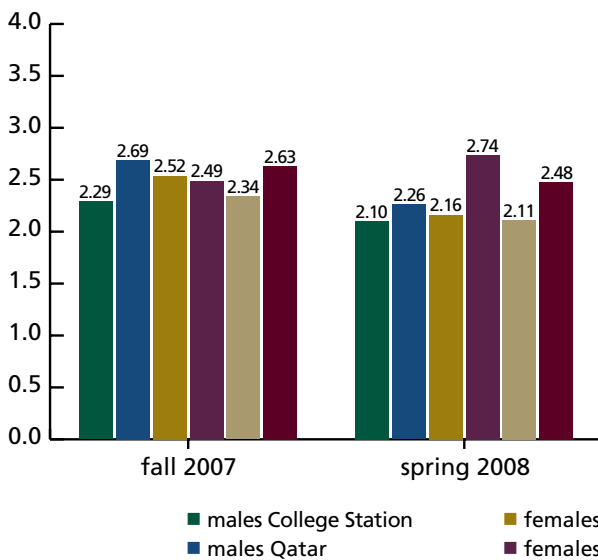
**May 2008** The University begins its first summer term with a full array of classes. Summer school enrollment was the largest ever for Texas A&M at Qatar.



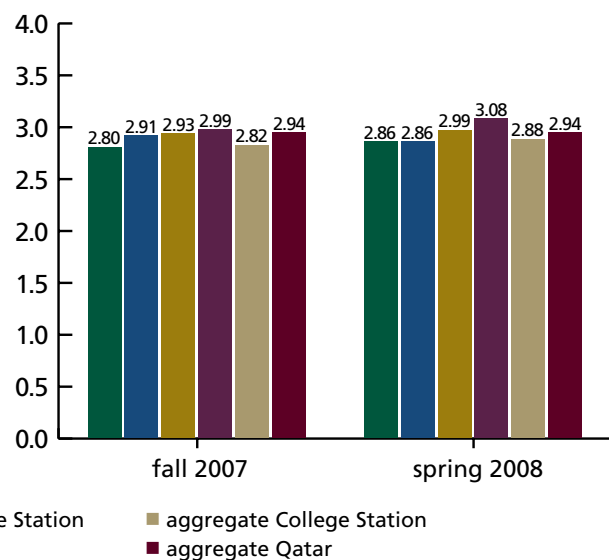
# Student Performance

Students at Texas A&M at Qatar exhibit strong academic performance, with GPRs comparable to or higher than those of their counterparts on the main campus. Student retention from the previous year is 83.6 percent, and after spring registration, summer school enrollment was forecast to be greater than 60 percent of spring semester enrollment. This increase represents 150-percent growth over the previous summer term. Burgeoning summer school enrollment is attributable to greater course offerings; students also are eager to earn their degrees in a timely fashion. The majority of students are on target to complete their degrees in a time frame similar to that of their counterparts in College Station. The nearby graphs depict cohort-to-cohort comparisons of aggregate GPRs for engineering students at Texas A&M in College Station and at Texas A&M at Qatar.

GPR of freshman engineering majors



GPR of all engineering undergraduates



His Highness the Emir, Sheikh Hamad bin Khalifa Al-Thani, delivered the charge to class in his remarks to graduating seniors during Education City senior convocation.





## Education City Senior Convocation

Thirty graduating seniors participated in Education City senior convocation on 6 May. The event brought together faculty, administrators and graduates from the universities in Education City for a joint celebration of the students' achievements. Texas A&M President Dr. Elsa Murano and a delegation of University officials from College Station also attended.

Texas A&M at Qatar faculty and deans wore academic regalia and took part in the processional, and members of the graduating class contributed gifts to a 10-year time capsule for Her Highness Sheikha Mozah Bint Nasser Al Missned.

During convocation, His Highness the Emir, Sheikh Hamad bin Khalifa Al-Thani, offered a charge to the graduating class along with congratulatory remarks to the graduates. "We are resolved to better utilize the entire human and natural resources of our country to achieve a competitive and a knowledge-based economy, and we are fully aware that this strategic choice represents, in its own right, a formidable challenge and test," he said. HH Sheikh Hamad urged the graduates to remain connected with Education City. "I wish you all success and call upon you to remain always a bridge of continuity as alumni of Education City, remembering the institutions and faculty members who embraced and cared for you all these years," he said.

Texas A&M at Qatar provided significant logistical support to Qatar Foundation before and during senior convocation. Press rooms were set up in computers labs in the Texas A&M Engineering Building, and lecture halls were used for press briefings before convocation. Additionally, the pyramids plaza of the Texas A&M Engineering Building was used to host the reception after the finale of convocation.

*"We are resolved to better utilize the entire human and natural resources of our country to achieve a competitive and a knowledge-based economy, and we are fully aware that this strategic choice represents, in its own right, a formidable challenge and test."*

—HH the Emir, Sheikh Hamad bin Khalifa Al-Thani

*Education City senior convocation*

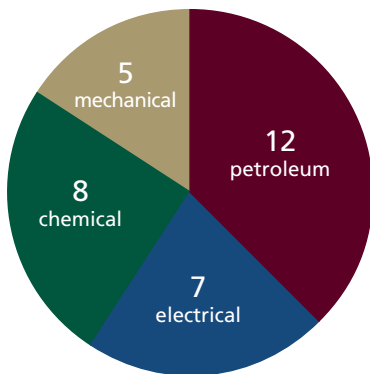
*6 May 2008*



## Graduation Report

Texas A&M at Qatar honored its first two graduates with a celebration on 17 Dec. 2007. Both graduates, Hessa Al-Missned and Aisha Al-Wadaani, Qatari women, received their bachelor of science degree in chemical engineering. The celebration included opening remarks by Dr. Mark Weichold, dean and CEO of Texas A&M at Qatar, a welcome from Qatar Foundation by Dr. Fathy Saoud, a greeting from the Joint Advisory Board by Dr. David B. Prior, congratulatory remarks by Dr. Chuck Bowman, dean emeritus of Texas A&M at Qatar, and a presentation of the graduates by Dr. K. Lee Peddicord, senior associate dean for research of the Texas A&M Dwight Look College of Engineering.

### graduates by engineering discipline



The University held its inaugural commencement exercises in Qatar on 15 May 2008. Thirty students from the classes of 2007 and 2008 received their diploma in front of a standing-room-only crowd of more than 700 at the Four Seasons Hotel Doha. Of the 30 graduates recognized, fourteen were Qatari and the other graduates represented eight other countries. Sixteen of the graduates were female and fourteen were male.

Dr. Jerry R. Strawser, interim executive vice president and provost of Texas A&M, presided over the ceremony; he also officially conferred the degrees on behalf of the University. His Excellency Abdullah Bin Hamad Al-Attiyah, Qatar's first deputy prime minister and minister of energy and industry, gave the commencement address. Additionally, Dr. John Niedzwecki, executive associate dean of Texas A&M's Dwight Look College of Engineering, brought greetings on behalf of the college. Dr. Mark Weichold presented degree candidates, and Kelli Hutka, director of campus programs for The Association of Former Students, inducted the graduates into the alumni association. The commencement ceremony was followed by a reception, which included a traditional Qatari sword dance.

### *Graduates with Latin honors*

#### DECEMBER 2007

##### *Magna Cum Laude*

Hessa Ibrahim Al-Missned

#### MAY 2008

##### *Cum Laude*

Ameer M. Khader

Dina Samir Nicola

##### *Summa Cum Laude*

Sabla Yehya Alnouri

Ali Abdulrahman Dashti

Safa Naufal

Sara Mehsin Al-Saadi





### Comments from HE Al-Attiyah at Commencement

His Excellency Abdullah Bin Hamad Al-Attiyah, Qatar’s first deputy prime minister and minister of energy and industry, offered congratulatory remarks at commencement on 15 May.

Qatar Petroleum (QP) is a longstanding supporter of Texas A&M at Qatar—indeed, more than 60 of the University’s students are sponsored by QP. HE Al-Attiyah affirmed the commitment of Qatar Petroleum and its affiliates to the education initiatives of Education City and Texas A&M at Qatar, and he pledged to help every Texas A&M at Qatar engineering graduate to find work in Qatar industry.

“Qatar Petroleum has been the leading Qatari organization in supporting the establishment of the Texas A&M at Qatar campus and in identifying areas of cooperation between the University and the energy and industry sector, based on the belief that investing in education, and supporting universities at Education City guarantees the country’s future and progress,” he said.

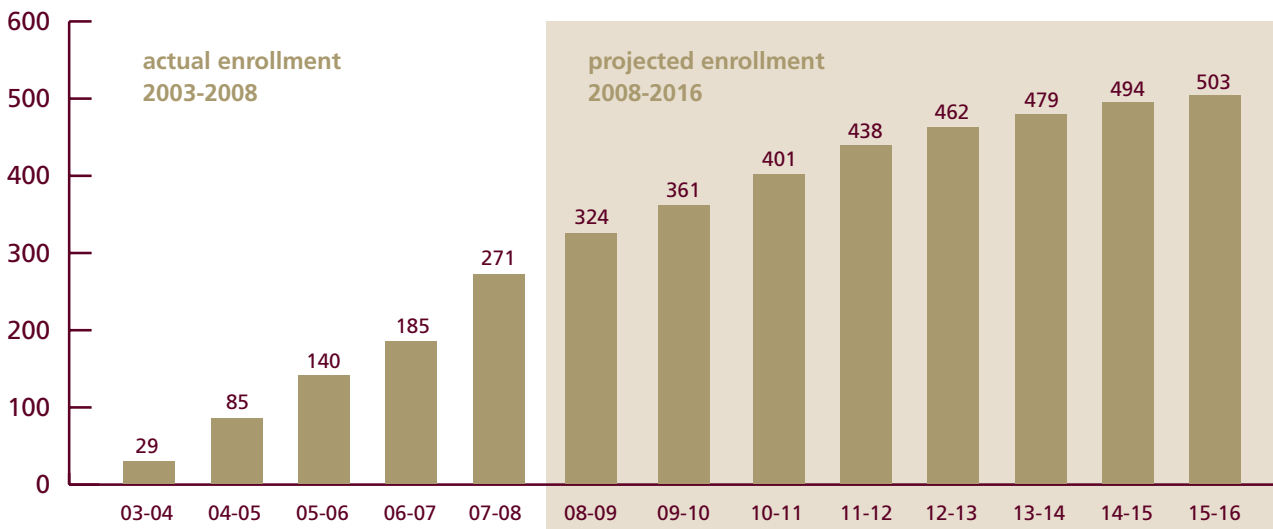
### Report on Job Placement

Job placement information about the University’s May 2008 graduates is based on reports received by the Academic Services Office during exit interviews with the graduates. Of the 30 graduates, 21 had been offered positions with companies such as Qatar Petroleum, RasGas, Q Chem, and Kahramaa. Additional job placement has been with GE, ExxonMobil, Shell, DNV, Schlumberger and Qatar Gas. Of the remaining eight graduates, one has decided to pursue graduate studies and six were still seeking employment at the time they graduated.



His Excellency Abdullah Bin Hamad Al-Attiyah, Qatar’s first deputy prime minister and minister of energy and industry, gave the commencement address.

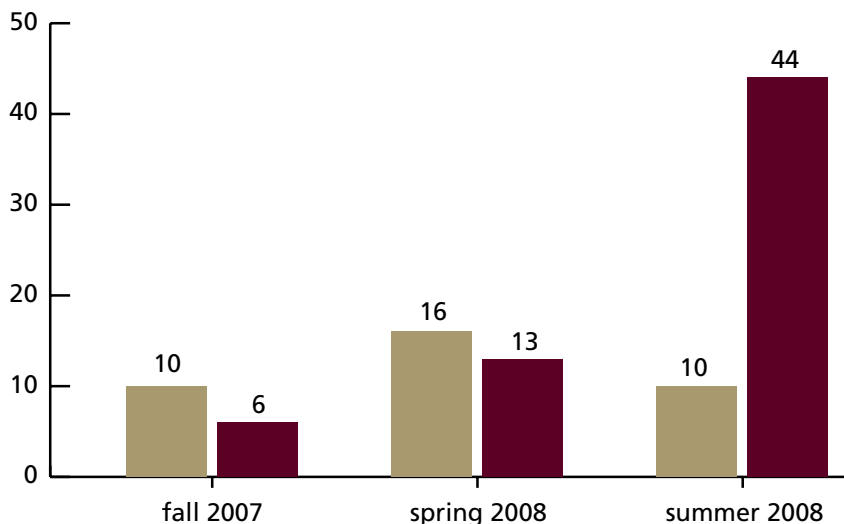
## Enrollment Trends and Outlook



Texas A&M at Qatar is optimistic about continued growth in enrollment as well as quantity, diversity and academic quality of applicants. The nearby chart illustrates projections for enrollment based on current enrollment trends, budget parameters and the University's available space for instruction. The University is committed to recruiting the highest quality Qatari and Gulf-region students.

## Cross Registration

■ students cross-registered for study at Texas A&M at Qatar  
 ■ Texas A&M at Qatar students cross-registered for study at other Education City universities



Students in Education City regularly cross register at other universities to take courses that satisfy degree requirements. In the 2007–2008 academic year, 36 students from other Education City universities took courses at Texas A&M at Qatar and 63 Texas A&M at Qatar students enrolled in courses in other Education City universities.

# Visit by Texas A&M University President Dr. Elsa Murano

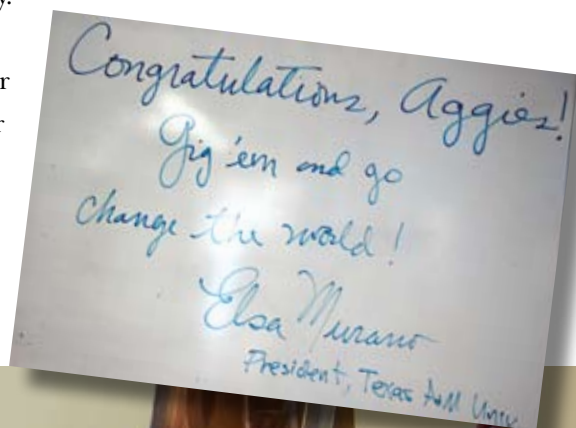
**T**exas A&M at Qatar hosted Texas A&M University President Dr. Elsa Murano and a delegation of University officials 4–6 May. President Murano, who took office in January 2008, toured the Texas A&M Engineering Building and Education City facilities and met with students, faculty and staff during her visit. She also spent time visiting with members of the 2008 graduating class.

During her visit to Qatar, President Murano met with Dr. Fathy Saoud, president of Qatar Foundation, and Dr. Abdulla Al-Thani, Qatar Foundation vice president for education, to discuss ways Texas A&M could further support Qatar Foundation’s mission. The University hosted a luncheon in President Murano’s honor for research partners in academia, government and industry.

The hallmarks of President Murano’s visit were a meeting with Her Highness Sheikha Mozah Bint Nasser Al Missned, chairperson of Qatar Foundation, and Education City senior convocation, held on 6 May.

President Murano reported that her trip to Doha was educational and productive and that she looks forward to visiting Qatar in the future.

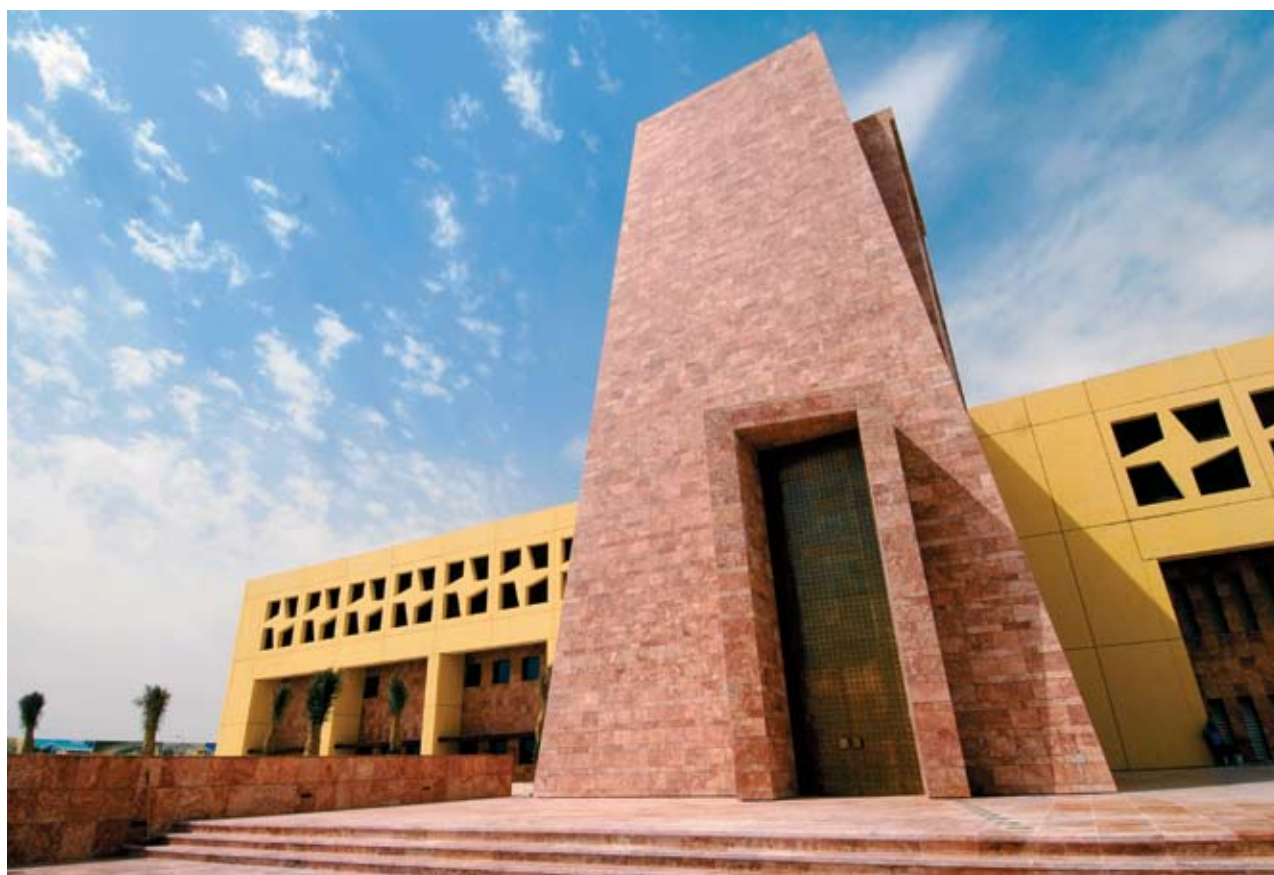
Texas A&M President Dr. Elsa Murano (third from left) hosted breakfast for graduating seniors during her visit to Qatar in May.



# Engineering Building

**T**exas A&M at Qatar began occupying the Texas A&M Engineering Building in May 2007. The summer months were spent processing the snag list and familiarizing staff with the new facilities. The physical size of the building created many challenges in both of these areas. The snag list comprised several volumes of documents covering items from building management systems to door hardware. The process of clearing the snag list and commissioning the building involved several groups over a 12-month period. During this time, staff became familiar with the new classrooms, lecture halls and laboratory facilities. The primary focus for the engineering program staff was receiving equipment and setting up 30 academic laboratories.

After the first six months of building occupation, the University began internal space planning studies to determine the needs associated with Liberal Arts and Science programs. Approximately halfway through that process, Qatar Foundation requested temporary facilities for Northwestern University's journalism and communications programs in Education City. Space planning was placed on hold until Northwestern's requirements were clear. As planning with Northwestern evolved, the University was able to incorporate modifications to support sections of the Liberal Arts Program. The modifications required to relocate the chemistry laboratories have been re-assessed and targeted for completion in May 2009. About 70 percent of the facilities constructed for Northwestern within the shell space can be converted for Texas A&M's use with no modifications. The space will be devoted to offices and meeting rooms to accommodate staffing requirements.





## Student Life

**A**ggie spirit and traditions continued to develop and deepen at Texas A&M at Qatar in 2007–2008. Both the Buck Weirus Award and the Gathright Award were presented this year. The first Run for the Ring was held. Aggie Muster was observed on campus for the fifth consecutive year. An open house event similar to the Memorial Student Center's open house from the main campus marked the beginning of the fall semester. A hallway sale was held with Aggie souvenirs and memorabilia from the bookstore on the main campus. Gig 'em Week is scheduled for the first week of class this coming fall semester. Aggies were very visible on the Education City campus not just because of Aggie T-shirts but because of students taking leadership roles as Aggie Ambassadors, resident advisors in the residence halls, participating in LeaderShape, and easily having the loudest and proudest 12th Man at sporting events.

### Recognized Student Organizations

The formation, recognition and advising of student clubs and organizations is a critical component of student life. The clubs and organizations program was expanded this year by creating a student organization handbook, a club and organization open house event, and a training seminar for all club officers and advisors.

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*recognized  
student organizations*

Student Body Government  
Sports Club  
Qataries Network  
MyEC  
Aggie Debating Club  
Maroon Club  
Scuba Diving Club  
Society of Women Engineers  
Aggie Girls Club  
Society of Petroleum Engineers  
American Institute of  
Chemical Engineers  
American Society of Mechanical  
Engineers  
Institute of Electrical and  
Electronic Engineers  
Multimedia Club  
12th Man Student Club  
TAMUQ Chess Club  
Society of Automotive Engineers  
Students for Environmental  
Awareness  
Cultural Exchange Club

The number of recognized organizations for the 2007–2008 academic year increased to 19. Student organizations are now under the same guidelines for organizations as on the main campus, including a classification structure and adviser requirements.

The currently recognized student organizations are listed at left.

**Student Leadership Exchange Trips**

Twelve students from the main campus and 10 from Qatar visited each others' campus during their respective spring breaks. The trips were well executed and the students had incredible cultural exchanges on both legs of the trip. Student affairs staff from the Qatar campus planned the program for the Aggies visiting from College Station. The program for the visiting Qatar students was planned by a committee from student affairs at the main campus along with the Qatar Support Office and the Dwight Look College of Engineering.

There continues to be great interest in these exchange trips. There is an application and selection process on each campus. On the Qatar campus only about half the students who apply are selected to go to College Station. The greatest challenge with the exchange program is obtaining visas for the students from the US Embassy. Some students in Qatar selected for the exchange trip have been denied visas the past two years. University staff continue to work with the embassy and Qatar Foundation to try to improve the process.





### **Student Leadership Trip to Italy**

Students from the Qatar campus will participate for the fourth consecutive year in the MSC Champe Fitzhugh International Honors Leadership Seminar. The program is cosponsored by the MSC and the Honors Program from the main campus. The seminar happens during the last two weeks of July and is held at the Santa Chiara Study Center in Castiglion Fiorentino, Italy. The program is designed for incoming honors students and provides them with leadership skills along with an incredible cultural experience.

The student group from the Qatar campus this year will be led by Ali Ahmed, a senior electrical engineering major. The five incoming honors students are a diverse group representing five different nations: Bahrain, Pakistan, the Philippines, Qatar and Syria.

### **New Student Orientation**

Students have now become an integral part of the planning and executing of the new student orientation program. A student executive committee now assists in all aspects of the orientation planning. Student orientation leaders also work with the new students in small groups and guide them through the three-day orientation program. Two student leaders from the College Station campus were brought over to participate and add leadership and tradition to the Qatar campus program. During the fall 2008 semester, six study abroad students and two Bush School interns will provide that important link with the main campus.



Highlights of the fall 2007 orientation included an afternoon dedicated to the four engineering disciplines and a dinner hosted by the engineering societies; a student organization fair; an academic and non-academic services fair; and tours of the Engineering Building. One new feature planned for the upcoming orientation is to have each of the six orientation groups focus on two Aggie traditions and make presentations about them to the entire group.

**Grant Jungeblut, a senior yell leader, traveled to Doha in August 2007 to teach the new Aggies at Texas A&M at Qatar about Aggie traditions and Aggie yells.**



### Wellness Program

The counseling and wellness program services include biofeedback training, workshops for students and student groups on most any topic, counseling and coaching to students who desire some change in their lives, consultation to faculty, staff and students with regard to student issues, crisis intervention, disability service, health promotion activities, and a referral resource.



A handful of lucky Aggies who participated in Run for the Ring 5K runs will receive their Aggie ring for free when they become seniors.

Significant changes and new programs occurred in the program this year. The Passport to Health program started on 27 Oct. and continued for six weeks. It is a virtual program combining physical activity with nutritional goals as well as some geography and culture lessons from around the world. Fifty-seven students and 35 faculty and staff participated in the Passport to Health program.

Student Affairs hosted Run for the Ring programs on 27 Oct. and 8 Dec. A total of 139 people participated in these two events.

The wellness staff participated in the Qatar Foundation international orientation program for the first time this year. The wellness program also held seven QPR trainings. QPR is a suicide risk reduction program; QPR stands for question, persuade, and refer. A total of 23 students, faculty, and staff have attended these trainings.

The counselor saw 29 students for individual counseling sessions during the fall semester and 28 students during the spring semester.

Dr. Amanda Samson, a psychologist, joined the wellness staff this spring.

### Aggie Rings

Fourteen Aggie rings were presented on 11 Sept. 2007 during academic convocation and another 35 were presented in a ring ceremony in April. A total of 73 Aggie rings have been presented at the Qatar campus. The ring order process is now firmly in place with orders being placed in December and May each year. The Association of Former Students, the finance department and Department of Student Affairs have collaborated to make the process user friendly for the students. The local Qatar A&M Club now plays an essential role by presenting the rings at each ceremony. Twenty-three more rings have just been ordered and will be presented at the academic convocation on 25 Aug.



*73 Aggie rings  
have been presented  
at the Qatar campus.*

### Student Athletics

The University's student athletic program continues to grow and develop. The men's soccer and basketball teams are firmly in place, and both have generated tremendous enthusiasm. Both teams are very competitive and participate in the Education City league and tournaments during the fall and spring semesters. Approximately 30 men play on the soccer team and approximately 15 men play on the basketball team.

A women's basketball team began this year but they were not able to participate in any organized leagues or tournaments. It is hoped that a women's league will form this upcoming year and that the Aggie women's team will participate.

One new addition to the sports program is the cricket team. They began play this spring and look forward to continuing in the fall.

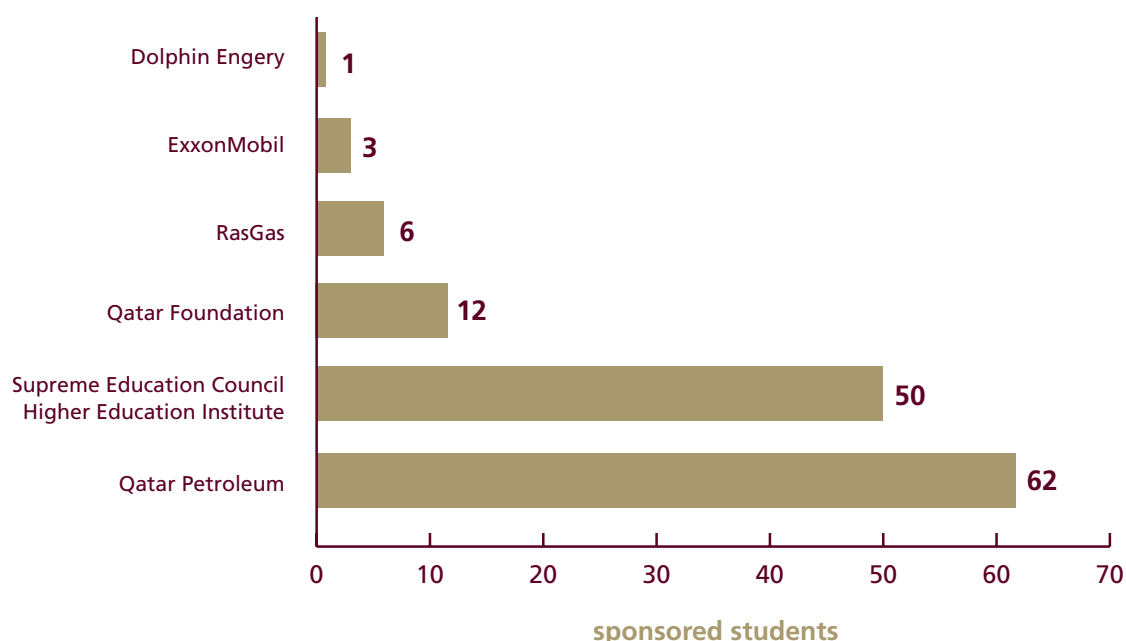


# Academic Services Office

The Academic Services Office (ASO) is home to academic advising, career services and study abroad programming. The office also serves as the campus liaison for managing tuition, fees and financial aid with Qatar Foundation as well as sponsorships with sponsoring agencies. ASO staff advise students about their curricular options and provide career-related support to all students by hosting events and workshops at Texas A&M at Qatar. The office will expand its scope in the 2008–2009 academic year by engaging in collaborations with faculty on learning initiatives, as well as by implementing peer tutoring and supplemental instruction programs to enhance students' potential for academic success.

## Sponsorships

Texas A&M at Qatar enjoys close ties with several local and international companies that cover the educational and living costs of students enrolled in the University. Almost one-half of students (48.5 percent) enrolled during the 2007–2008 academic year were sponsored. Qatar Petroleum and its affiliates cover the educational and living costs for the majority of the University's 134 sponsored students. Upon completion of their studies and in accordance with the terms of their sponsor agreements, these students will begin their engineering careers as employees of their respective sponsors.



## Career Services

In anticipation of the University's growing enrollment and first classes of graduates, ASO began providing career services to advise and assist students with their job search. These services are targeted at students who will not graduate with a guaranteed job from a sponsor; ASO assists students in pre-

paring for a job search by offering sessions on résumé writing and interviewing skills. The office also hosts networking and recruiting events to introduce students to representatives from industry who are potential employers.

### Career Events

The Academic Services Office hosted two employment recruitment events in 2007–2008. The fall networking event, held in November 2007, introduced graduating seniors to regional firms in an informal setting. Thirty-five representatives from 16 companies met with many of the graduating seniors, as well as with University faculty and staff. Two days in April were dedicated to the first Texas A&M at Qatar career fair, Careers for Engineers 2008. This event promoted students to local companies as candidates for internships and permanent employment. Feedback on both events was exceptionally positive and many students accepted offers for internships, sponsorship or employment as a result of these recruiting opportunities.

### Partnerships for Internships

At the conclusion of the spring 2008 semester, the University formed the Internship Activities and Industry Relations Committee. The committee is charged with ensuring the highest caliber of internship experiences for students and for industry partners. The committee's charge and structure provide opportunities for faculty members to engage themselves and their students in meaningful research endeavors in their fields of study. The outgrowth of these actions will strengthen the already close ties between Texas A&M at Qatar and local industry and further ensure faculty remain apprised of developments in their fields.

Texas A&M at Qatar held its first career fair during the spring 2008 semester. Students not only found full-time employment, but many undergraduates also obtained internships through contacts they met at the career fair.



# Office of Academic Affairs

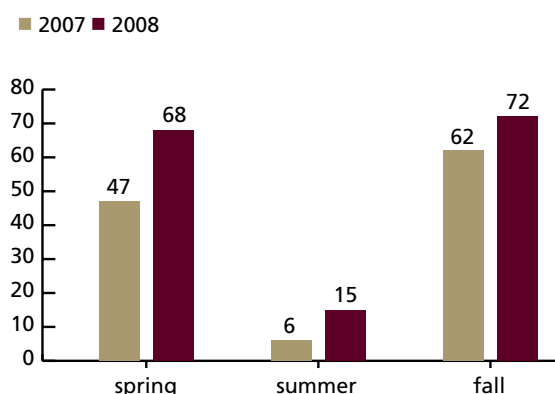
Texas A&M at Qatar continuously strives to provide students with a high-quality education that will prepare them for a wide range of engineering careers. The curriculum is designed to accomplish this by closely integrating cutting-edge basic and applied research with innovative classroom instruction. Texas A&M at Qatar's academic programs are materially the same as those at the main campus in College Station, Texas, and the engineering curricula and choice of elective courses are designed to meet strategic needs of Qatar industry.

## Course Offerings

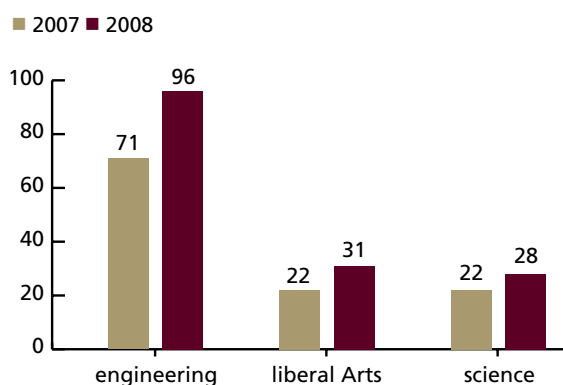
During the 2007–2008 academic year, Texas A&M at Qatar offered 145 courses—62 in the fall semester, 68 in the spring and 15 in the summer. One-half of the courses were in the four engineering disciplines and the others comprised liberal arts and sciences courses. More than one-half of courses offered in 2007–2008 had a laboratory component. Class size averaged 15 students per section.

Seventy-two courses are planned for the fall 2008 semester. Course section sizes have been increased to meet the needs of steadily increasing numbers of students at each level in the programs. This will allow average class size to remain close to the previous year's average.

total courses by year



course distribution by year



## Faculty

Texas A&M at Qatar has 68 full-time faculty in Doha, of which 38 are in engineering, 12 in sciences, 13 in liberal arts, three in the library and two in kinesiology. Also, 25 percent of full-time faculty hold joint appointments with the University's College Station campus. Thirteen faculty joined Texas A&M at Qatar in 2007 and another 11 are scheduled to arrive for the fall 2008 semester.

Faculty maintain active research programs in a wide range of areas. The individual program reports included in this report provide more highlights along with a list of peer reviewed publications and research funding from the Qatar National Research Fund and other sources, including local industry.



## Chemical Engineering Program

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### *by the numbers*

9 faculty members  
in the program

2 publications per  
faculty in 2007

14 research grants  
and contracts

### *technical areas*

reaction engineering and  
heterogeneous catalysis

environmental engineering

calorimetry and process safety

process design, optimization,  
and system integration

process systems engineering  
and control

In the past year, the Chemical Engineering Program concentrated efforts on recruiting highly qualified faculty members in research areas relevant in Qatar and the region. The program's new faculty members have specialties in calorimetry and process safety, process integration and optimization, heterogeneous catalysis, and design of environmental processes for air emission control systems.

The program made major moves toward establishing a research program in 2007–2008. Faculty received three research grants from the first cycle of the Qatar National Research Fund (QNRF) National Priorities Research Program (NPRP), and researchers signed an agreement for a research project funded by BP to study LNG process safety. Researchers in water treatment and environmental technology have proposed to develop an inexpensive and environmentally benign technology for inland desalination of brackish groundwater that produces zero liquid discharge. Qatar Science & Technology Park (QSTP) funded \$420,000 over 18 months to study this issue, which is a critically important project to Qatar's agricultural sector. In addition, several faculty members received Undergraduate Research Experience Program (UREP) grants for projects that involved more than 10 undergraduate students. More importantly, most of these projects involved collaborations with world experts in the program's primary research areas, helping the program introduce Texas A&M at Qatar to peers and advance recruitment efforts.

The Chemical Engineering Program also has worked to establish a strong link with industry and government institutions in Qatar and the region. The program restructured its internship program to allow students to participate in numerous internship opportunities in Qatar and the region and to introduce them to the highly advanced industrial settings in Qatar. Most students participated in the internship program during summers 2007 and 2008.

Faculty organized several workshops and lectures during the 2007–2008 year. The Environmental Chemistry II training seminar was held 4–6 March 2007 in collaboration with Dr. M. Sam Mannan, professor of chemical engineering at Texas A&M in College Station and director of the Mary Kay O'Connor Process Safety Center, and Dr. Ahmed Abdel-Wahab from Texas A&M at Qatar. The course reviewed general chemistry topics that are relevant to environmental engineering practices that benefit industry in Qatar. The program sent a student delegation to the American Institute of Chemical Engineers conference in Salt Lake City, Utah, USA, in November 2007.

Eight students graduated from the chemical engineering program during the 2007–2008 academic year. Most of these graduates received job offers from industrial and governmental organizations.



## Electrical and Computer Engineering Program

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The past year has been busy and productive for the Electrical and Computer Engineering Program. Six new faculty joined the program, coming from prestigious programs to teach and conduct research in four areas: computer engineering, control systems, electric power and telecommunications, and signal processing. Along with these, three more new positions will be filled in the coming year and these faculty will help the program cover the variety of topics and specialties in the curriculum and position the University well in emerging areas of research in these topics.

Five proposals from the program were awarded research grants in the first cycle of the Qatar National Research Fund (QNRF) National Priorities Research Program (NPRP). In the computer engineering group, researchers are working on large-scale wireless mesh networks (or wireless grids) composed of hundreds or even thousands of low-cost wireless access points and user hand-held devices to form wide coverage areas such as a city downtown, a convention center or a university campus. In the control area, faculty are collaborating with RasGas to design and deploy robots operating in harsh environments to develop down-hole conveyance technology. The electric power and power electronics group has projects funded by QNRF to develop the next generation of natural-gas-fed fuel cell power conversion and control systems. And in the telecommunication and signal processing area, researchers are collaborating with engineers from RasGas and Tubel Technologies (Houston, Texas) to develop improved techniques for acoustical wireless down-hole communication systems.

It is significant to mention that some of these research activities, including projects with Qtel and RasGas, are also serving to acquaint undergraduate students with the opportunities and rewards available to electrical and computer engineering professionals. In addition, many of the electrical engineering students have been engaged in summer internship experiences with local (Qtel and Kahramaa), regional (Jordan Telecom and Egypt Basic Industries Corporation), and multinational (Shell and Schlumberger) companies.

The program graduated eight students in May 2008. Before that, the graduating seniors conducted presentations for their projects and live demonstrations of their designs. Guests from local industry attended the event and participated in evaluation of students' projects and performance in presentation. Based on that, a design award was given to the team of seniors who developed a "Solar LED Lighting System."

### *by the numbers*

- 11 faculty members in the program
- 11 research grants and contracts
- 8 publications per faculty (average) in 2007
- 6 senior members of IEEE on faculty
- 2 IEEE fellows on faculty

### *technical areas*

- computer engineering
- control systems
- electric power and power electronics
- telecommunications and signal processing

# Mechanical Engineering Program

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## *by the numbers*

10 faculty members  
in the program

10 senior members of  
professional societies

6 research grants  
and contracts

5 publications per faculty  
(average) since 2003

## *technical areas*

mechanical design

thermal and fluid systems

mechanical systems and  
controls

mechanics and materials

manufacturing

engineering management

packaging

The Mechanical Engineering Program undertook major changes in 2007–2008 to prepare for future growth of the University. The move to the new Engineering Building was completed and all laboratories for undergraduate instruction were outfitted with state-of-the-art equipment. The labs cover the basics of mechanical measurements, dynamical systems and vibrations, fluid mechanics, heat transfer and thermodynamics, materials, and manufacturing.

Three new faculty were added at the assistant professor level in the areas of fluids and heat transfer, thermodynamics and alternate energy, and mechanics. One senior-level visiting professor was hired to help prepare for future program needs including ABET accreditation.

The major achievement of the department was the graduating class of 2008. Five mechanical engineers graduated in May after completing a capstone design course. The department fostered relationships with many commercial interests in the region that will lead to more sponsored design projects and internships for mechanical engineering students.

Another major achievement was the enhanced interaction with the mechanical engineering program in College Station. Professor Dara Childs from the Turbomachinery Laboratory at Texas A&M was invited to provide a short course on the rotor dynamics of turbines and pumps. More than 20 local engineers participated in the short course that provided continuing education credits for the participants. This course served as a way for Texas A&M at Qatar to introduce to local industry the benefits of having world-class engineering education readily available.

Three mechanical engineering faculty received grants worth more than \$1.2 million from the Qatar National Research Fund (QNRF) National Priorities Research Program (NPRP). The research will look at improving efficiencies in air conditioning systems and in internal combustion engines. These proposals address the problem of fuel efficiency, environmentally friendly combustion and focus on the development of a VAV air distribution system model for large commercial facilities. This project is in collaboration with the main campus and focuses on homogenous charge compression ignition (HCCI) process. Mechanical engineering faculty also are collaborating with Hamad Medical Corporation on developing proposals for research on biomedical signal processing. Smaller active projects on fault detection in turbomachinery have also been conducted in collaboration with local industry. Future funding for research in the Mechanical Engineering Program is promising in areas related to solar powered generation of hydrogen from natural gas and other medical and fossil-fuel related topics.

## Petroleum Engineering Program

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Enrollment in the Petroleum Engineering Program neared 80 students in 2007–2008. The program has eight faculty members and will add one in the coming year. One-third of the students who graduated from Texas A&M at Qatar in 2007–2008 received degrees in petroleum engineering.

During the year, petroleum engineering students competed in Society of Petroleum Engineers technical paper contests in Doha, Qatar, and Dubai, UAE. These contests placed students in direct competition with students from throughout the Middle East.

Six Aggies from the student chapter of SPE went to Anaheim, Calif., USA, to participate in the 2007 annual technical conference and exhibition. There they took part in student officer activities and the annual Petro-Bowl competition.

Teaching facilities neared completion during 2007–2008. The Petroleum Engineering Program has eight labs for geology, petrophysics, fluid properties, drilling fluids, well control and reservoir visualization. Of these, the petrophysics lab is the only teaching lab to employ the use of CT scanning as a teaching tool.

Research has begun within the department with a total of eight projects with funding of \$1.5 million. The projects are in key areas of need for the region with emphasis on CO<sub>2</sub> sequestration, gas well wettability alteration and remediation, and reservoir simulation modeling.

Faculty have begun to work with oil and gas producers in the region, including Qatar Petroleum, RasGas and service companies such as Schlumberger to begin a research program. Funding has also come from the Qatar National Research Fund (QNRF) National Priorities Research Program (NPRP), from which two of the program's eight projects are funded.

### *by the numbers*

8 faculty members  
in the program

8 research  
projects

11 graduates  
in 2008

### *technical areas*

petroleum fluid properties

core petrophysics

well testing

reservoir engineering

drilling

production

gas hydrates

## Liberal Arts Program

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*by the numbers*

**13** faculty members  
in the program

**32** research papers presented  
at academic conferences

**20** percent of the engineering  
curriculum is liberal arts  
and kinesiology

The liberal arts form a complementary and essential portion of education at Texas A&M at Qatar. In addition to contributing to the growth of the individual, the liberal arts curriculum emphasizes reading, writing and thinking skills to develop communication abilities that benefit students throughout their lives. In today's competitive environment, communication skills are a valued asset for graduates seeking to enhance their career prospects. Over the past year, the Liberal Arts Program continued to seek new ways to augment the student experience, participate in important research activities and contribute know-how to a broad audience.

The English faculty is on the cutting edge of student language skill assessment. Engineering students at Texas A&M at Qatar represent more than 20 nations, and English is a second or third language for many students. To ensure that students have the greatest opportunity for success, every incoming student takes several assessment tests using the latest measurement software. The objective is to accurately place freshmen into classes providing the greatest benefit to their future development as engineers.

People outside the University recognize the skills of the program's faculty and call upon them to share their expertise in broad forums. Over the past year, faculty members have appeared on KBTX television and KAMU radio (College Station, Texas, USA), Al-Jazeera English television news (Doha, Qatar), and C-SPAN television (Washington, D.C.). One faculty member was chosen to be the summer writer-in-residence at a study center in the Czech Republic. These appearances provide positive exposure for the University and demonstrate to others the quality of education available at Texas A&M at Qatar and in Education City.

The Liberal Arts Program is the leader among Education City institutions in organizing collaborative opportunities for faculty and students. In fall 2007, liberal arts faculty began hosting a monthly Liberal Arts Research Forum. These gatherings allow Education City scholars an interdisciplinary forum to present their research. The objective is to encourage scholarship in the liberal arts and social sciences communities to increase opportunities for scholarly collaboration. In summer 2008, Texas A&M at Qatar and Georgetown University School of Foreign Service in Qatar offered a joint class co-taught by one faculty member from each institution. The class brought together an economist from Georgetown and a political scientist from Texas A&M at Qatar to give extensive coverage of the politics and economics of the Gulf. Students from Education City were joined by five students from the United States Military Academy.

## Science Program

The Science Program at Texas A&M at Qatar concluded a very successful year of teaching and research. The Science Program provides a robust framework in the fields of chemistry, mathematics and physics to supplement the engineering programs and offer academic minors. As Texas A&M at Qatar offers undergraduate degrees only in engineering, the Science Program offers essential resources and advice to ensure every student's success in research projects and the overall understanding of their engineering degree.

Three new faculty joined the program in fall 2007, and the program organized and hosted two conferences: the QAFCO-TAMUQ Chemistry Conference in January 2008 and the Doha Conference on Applied Mathematics and Computational Science in late March and early April 2008. The Science Program signed a memorandum of understanding with Qatar Fertiliser Company (QAFCO) under which QAFCO will be the exclusive sponsor of the chemistry conference through 2012.

Science Faculty submitted 11 proposals in the first round of Qatar National Research Fund (QNRF) National Priorities Research Program (NPRP) grants, and seven of these were successful, resulting in \$4.9 million in research funding. In addition, five undergraduate research proposals totaling \$120,000 were granted. The projects cover a wide array of subjects in the program's three fields. The publication record of the program was an impressive 41 refereed journal papers, one patent, and 29 conference papers.

Physics Professor Suhail Zubairy received the prestigious Alexander von Humboldt research prize during the year.



### *by the numbers*

- 12 faculty members in the program
- 41 refereed journal papers in 2007
- 12 total number of grants
- 2 conferences organized by the program
- 1 US patent issued for chemistry research

### *technical areas*

- chemistry (polymer, organic, physical inorganic and archeological)
- mathematics (approximation theory, computational mathematics, dynamical systems, mathematics education and assessment, mathematical modeling of power systems, nonlinear partial differential equations)
- physics (quantum optics and quantum information science, laser physics, non-linear optics and dynamics)



## Library

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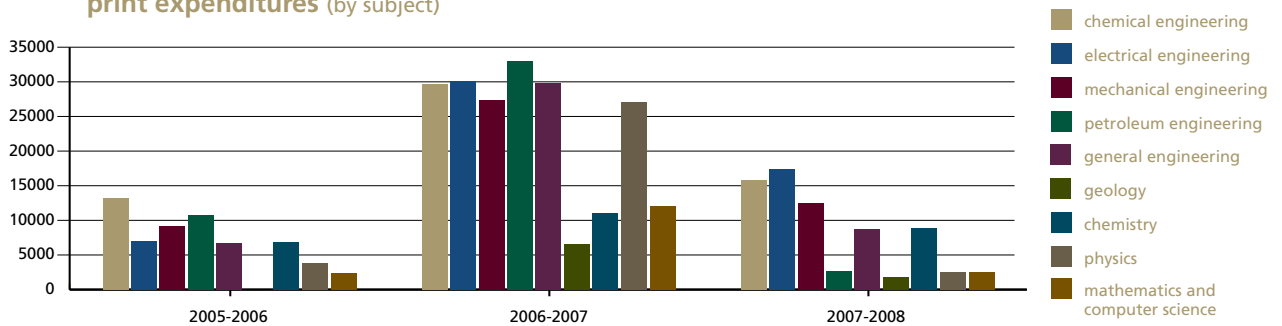
The move into new quarters in June 2007 allowed the library to expand its collection and concentrate on services.

### Collections

Library holdings have grown from a modest 1,000 volumes in 2005 to more than 8,000 volumes, 90 journal titles, and 700 audiovisual resources. The same high increase is true in circulation of the materials, which rose from just under 2,000 in 2005 to more than 6,100 uses of library materials in the past year. Students and faculty also use the electronic resources, which number 46,000 online journals, 650 databases and indexes, and 444,000 electronic books.



print expenditures (by subject)



### Services

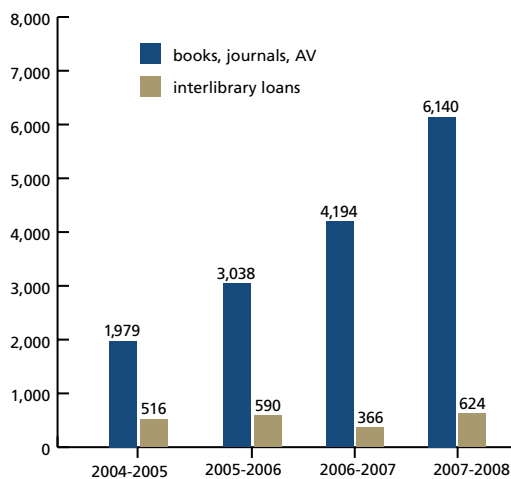
The continual uptick in resource usage is due not only to the growth in campus population, but also to the more sophisticated understanding by students of how to find and use resources for research and study. While continuing to provide reference and research assistance to the growing population

of faculty and students, library staff increased efforts to work with faculty in training students in the classroom to search, retrieve and evaluate information. A pilot program to work with freshmen in the fall 2007 introductory engineering course exposed new students to essential research techniques. This program was expanded in the spring term to work with freshmen and sophomores in liberal arts courses, tying research to writing assignments.

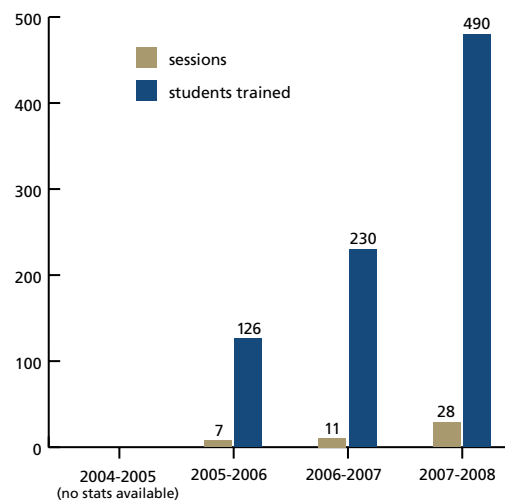
### New Facilities for Study and Group Projects

A commons area surrounds the library in the Engineering Building. The space is designed for group and individual study. The area seats more than 80 and is available 24 hours a day, seven days a week; it contains wireless connectivity, 16 computer workstations, printing, scanning and photocopying facilities, and access to the vast electronic resources of the University libraries. This was a popular gathering place for students, with up to 41 percent of the student body using the library commons during the busiest hours of 11 a.m. to 3 p.m.

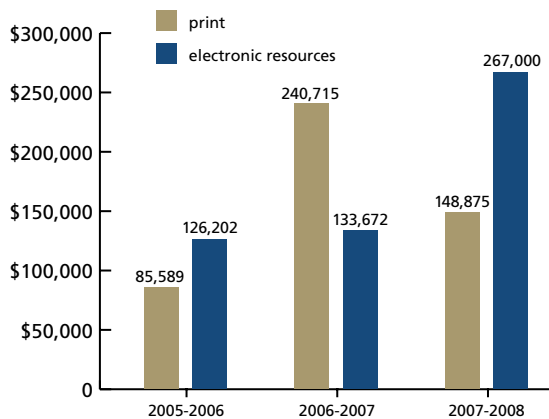
circulation



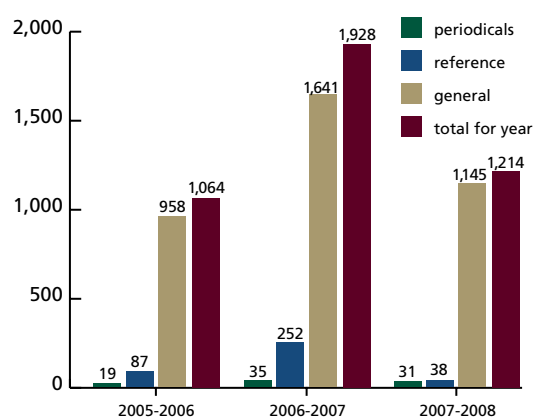
research instruction



expenditures (print vs. electronic)



library acquisitions





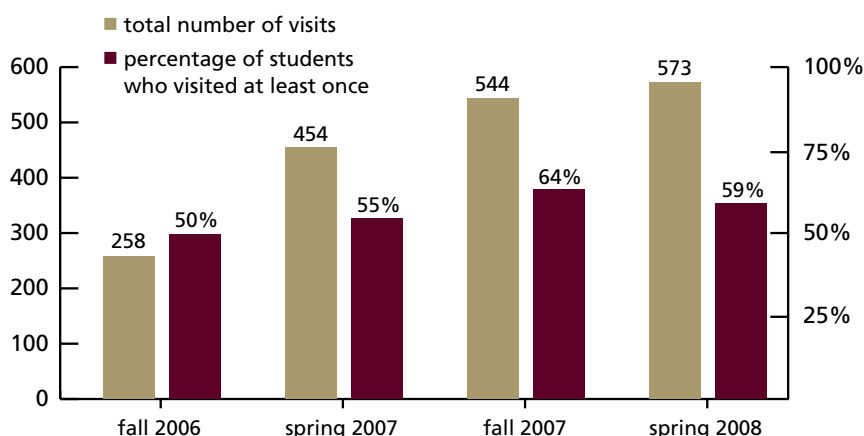
## Technical Communications Center

The Technical Communications Center (TCC) provides faculty, students and staff the opportunity to enhance written and oral communication skills through individual tutoring, computer-assisted language learning, workshops and other resources. The TCC promotes proficiency in written work and oral communication across the curriculum and provides faculty support in developing and teaching writing-intensive courses.

During the 2007–2008 academic year, the TCC operated in offices near the research rotunda. The TCC will relocate to permanent space on the third floor of the academic wing that is outfitted especially for tutoring and consultation with students and faculty.

### Student Use of the TCC

Student visits to the TCC increased significantly in 2007–2008. Although the percentage of students who visited increased only slightly, many students visited in teams so the percentage of students served is likely much higher.

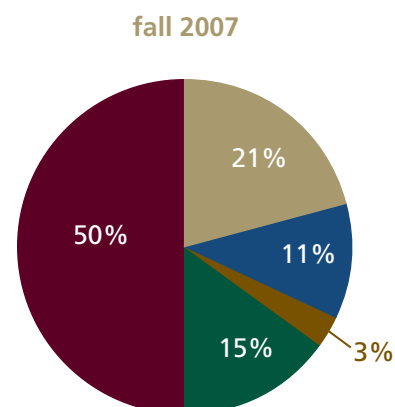


### Measuring Student Satisfaction with the TCC

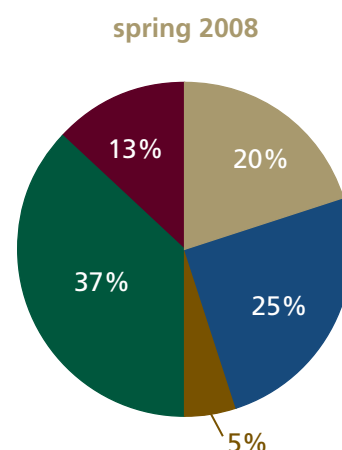
Students were asked by email during the spring semester to submit a confidential and anonymous survey regarding their satisfaction with TCC services. Forty-five students responded.

- Of those who answered that they did not visit the TCC this semester (nine of the respondents), the reasons ranged from lack of time to lack of need.
- The top reasons for visiting were to gain more confidence, to get help with citations, to get a better grade, and to satisfy the request of a professor.
- The new-student orientation, classroom instructors and other students were the best sources of information about the TCC for students.
- Of those who visited, 91.2 percent were either satisfied or very satisfied with TCC services.
- In terms of students' perception, more than 90 percent of students either agreed or strongly agreed that they feel welcome in the TCC, feel the TCC helped them become more confident writers and would recommend the TCC to other students.

The charts below illustrate the distribution of visits across programs for fall 2007 and spring 2008.



- ENGL 104 and 210
- science and engineering
- ENGR 111 (fall) and 112 (spring)
- liberal arts
- STLC



# Industry partners, research and graduate studies

The year 2007–2008 has been an exciting time for the research program at Texas A&M at Qatar. The University's already impressive record of collaboration and cooperation with Qatar-based industries has expanded considerably. Faculty have been successful in securing research funding through the Qatar Foundation peer-reviewed proposal programs, the National Priorities Research Program (NPRP) and the Undergraduate Research Experience Program (UREP), and the University is involved with several applied research and developmental projects at Qatar Science & Technology Park. Texas A&M at Qatar has had significant input into several stand-alone Qatar Foundation initiatives. In addition, faculty are serving Qatar as a focal point for topics of technological and scientific interest through invited lectures, seminars and workshops, and in particular by offering short courses in areas of critical need.

The future looks bright. The last year has brought a considerable expansion in laboratory research facilities that will allow the faculty and research staff to widen programs, bringing the promise of even more growth. Considerable thought has gone into this laboratory infrastructure to ensure that labs are state-of-the-art and dedicated to an efficient and safe operation. Finally, serious planning and negotiations are underway to establish a graduate degree program that will enhance the University's standing and reputation in Qatar and in the region.

## **Industry Collaborations**

Interactions with local industries and companies are ongoing, as are interactions with the many companies and US and other national government agencies that are interested in participating in the science and technological progress sponsored by Qatar. Texas A&M at Qatar has enjoyed essential and welcome support from many companies, including RasGas, ExxonMobil and ConocoPhillips—all of which have sponsored student scholarships, technical paper competitions and other endeavors to encourage students to be active in research.

### *Current major cooperative programs:*

#### **Downhole wireless communications technology** *with RasGas*

RasGas Company Ltd. has a research agreement with Texas A&M and Texas A&M at Qatar to develop improved technology for wireless down-hole communications systems. The project will study and characterize acoustical communication techniques and evaluate the propagation of acoustic waves in a pipe that is installed inside a well. A prototype system will be designed based on the results of the propagation studies. The project also will develop specifications for RasGas-specific well construction.

#### **LNG Safety Research** *with Qatar Petroleum and BP*

The Liquefied Natural Gas (LNG) Safety Program extends and complements an existing BP-sponsored program run at the Texas A&M in College Station, Texas, USA; it will advance the science and technical understanding of key safety issues impacting the worldwide LNG industry. The research will be carried out at Texas A&M at Qatar in Doha and will encompass practical testing at Qatar Petroleum's Ras Laffan Emergency and Safety College.



Dean Weichold and RasGas Managing Director Hamad Rashid Al Mohannadi mark the start of a new research agreement in September 2007. RasGas and Texas A&M at Qatar signed another agreement in June 2008.

#### **Asphalt/Road Studies** *with Qatar Shell*

Qatar Shell Research and Technology Center (Qatar Shell) has a research agreement with Texas Engineering Experiment Station (TEES), an affiliate of Texas A&M and Texas A&M at Qatar, for a project titled “Monitoring and Performance Evaluation of SEAM Asphalt Modifier Sections in Ras Laffan.” Both institutions will initially focus on the monitoring and evaluation of asphalt mixtures containing sulphur extended asphalt modifier (SEAM) and conventional hot mix asphalt laid by Shell over a 600-meter stretch of road at Pearl Village, the worker accommodation for the Pearl GTL project at Ras Laffan. The research also will focus on the relationship between different grades of asphalt to be used in conjunction with SEAM and the road’s performance; this research will provide information about optimal SEAM road installation techniques.

#### **Well Logging Technology Development** *with RasGas*

RasGas has a research agreement with Texas A&M at Qatar for a project titled “Advanced Designs for Wireline Tool Conveyance.” The project will study ways to improve designs for devices used to log oil and gas wells during the drilling process. The research project will be carried out at Texas A&M at Qatar facilities in Doha and at Texas A&M in College Station. The research project aims to investigate and create new technologies not yet addressed by the oil and gas industry in order to improve the overall efficiency of wireline tool operations in Qatar’s North Field.

#### **Qatar Telecom (Qtel) Wireless Communication Laboratory** *with Qtel*

Texas A&M at Qatar’s research group in the area of wireless communications and networking continues to be a campus research leader, securing additional support for growing wireless research capacity with a \$350,000 gift from Qtel. These funds will go directly to supporting wireless laboratory resources, making the University’s wireless research labs the leading facility of this type in the region.

## Short Courses

### Rotordynamics of Turbomachinery

29 people from local industry and government agencies participated in a course offered by Dr. Dara Childs of Texas A&M's Turbomachinery Laboratory

### Asphalt Pavement Materials and Construction

20 people from local industry and government agencies participated in this course, coordinated by Dr. Eyad Masad

### Asphalt Pavement Evaluation, Maintenance and Rehabilitation

17 people from local industry and government agencies participated in this course, coordinated by Dr. Eyad Masad

## Graduate Studies

Texas A&M at Qatar soon will offer master's degree programs in the following areas:

electrical engineering  
chemical engineering  
mechanical engineering  
petroleum engineering

Degree programs will emulate degrees offered at Texas A&M University with particular attention given to the needs of the region. Three different types of master's degrees will be available:

### Master of Engineering

30 hours of course work, intended for currently employed professionals and individuals not interested in research

### Master of Science (thesis option)

32 hours of course work, including required registration in at least eight hours of research and a student-written thesis

### Master of Science (non-thesis option)

36 hours of coursework, additional option for professionals and non-researchers

## Third-generation (3G) Wireless Communication Technology

*with Qtel, Qatar University and College of the North Atlantic–Qatar*

The project aims to conduct measurements and research that will evaluate the performance of third-generation wireless multimedia communication technology being installed at various sites in Doha.

## International Chemistry Conference *with QAFCO*

The annual Texas A&M at Qatar chemistry conference in January, sponsored by the Qatar Fertiliser Company (QAFCO), drew more than 80 chemistry scholars from a half-dozen countries. It featured a keynote lecture by Dr. Krzysztof Matyjaszewski of Carnegie Mellon University. Research conducted in the Matyjaszewski group is primarily focused on understanding the mechanistic parameters of atom transfer radical polymerization and other methods of controlled radical polymerization and using these procedures for the preparation of materials with controlled functionality, composition and topology.

## Virtual Instrumentation Center for Excellence *with National Instruments*

National Instruments honored Texas A&M at Qatar with a designation as a Virtual Instrumentation Center for Excellence in November. Through a partnership with National Instruments, Texas A&M at Qatar's center gives students and researchers the ability to design, test and deploy multi-functional systems and integrated software approaches to complex problem solving.

## Zero-liquid discharge water desalination *with Qatar Science & Technology Park*

Chemical engineers at Texas A&M at Qatar are leading a new \$400,000 project with Qatar Science & Technology Park (QSTP) that will develop a new process for water desalination that yields zero liquid discharge. Salty brine is the byproduct of conventional desalination processes, but the new desalination process would use lime and aluminum to yield solid waste that could be easily disposed. Scholars believe the process could be of tremendous benefit to Qatar and that it could alleviate water supply challenges not only in Qatar but in communities worldwide struggling with aquifer salinity.

## Programmatic Funded Research

### Qatar National Research Fund

#### *Undergraduate Research Experience Program*

More than 60 Texas A&M at Qatar undergraduates participated in the QNRF Undergraduate Research Experience Program (UREP), participating in hands-on research projects being mentored directly by University faculty. Over the first four cycles of the UREP program, Texas A&M at Qatar faculty secured more than \$650,000 in research education funds.

## National Priorities Research Program Grants

Investigators	Dept.	Total Amount	Title
Jerald Allen Caton (TAMU), Reza Langari (TAMU) Timothy Jacobs (TAMU), Reza Tafreshi (TAMUQ)	MEEN	\$747,824	Development of Low Emissions – High Efficiency Natural Gas Engine: Implementation of Homogenous Charge Compression Ignition (HCCI) Technologies
Hussein M. Alnuweiri (TAMUQ), Narasimha Reddy (TAMU)	ECEN	\$671,435	Design and Analysis of New Generation of Protocols for Triple-Play Networks
Mohamed-Slim Alouini	ECEN	\$410,353	Collaborative Strategies for 60 GHz Wireless Personal Area Networks
Shehab Ahmed (TAMUQ), Prasad Enjeti (TAMUQ)	ECEN	\$500,820	Natural Gas Fed Fuel Cell Power Generation and Economic Development
Eyad Ahmad Masad (TAMUQ), Dallas Little (TAMU)	ENGR	\$384,514	Innovative Design of Road Materials Using Physio-Chemical Properties, Imaging Techniques and Constitutive Modeling
Khalid Qaraqe (TAMUQ), Erchin Serpedin (TAMUQ), Zixiang Xiong (TAMU)	ECEN	\$615,557	Scalable wireless multimedia in Qatar (and the rest of the world)
Dragomir Bukur (TAMUQ), David Goodman (TAMU)	CHEN	\$745,153	Activation Studies with Cobalt Catalysts for Gas-to-Liquid Conversion
Ding Zhu (TAMU), Akhil Datta-Gupta (TAMU) Hadi Nasrabadi (TAMUQ)	PETE	\$741,371	Using Horizontal and Multilateral Well with Intelligent Completion to Develop Gas Fields in Qatar
Hadi Nasrabadi, Mashhad Fahes	PETE	\$413,448	Study of CO <sub>2</sub> injection in oil reservoirs and saline aquifers in Qatar for dual purpose of carbon sequestration and improved oil recovery
Ahmed Abdel-Wahab (TAMUQ), Patrick Linke (TAMUQ), Mahmoud El-Halwagi (TAMU), Bill Batchelor (TAMU)	CHEN	\$595,499	A Holistic Approach to the Sustainable Use of Seawater for Process Cooling
Mohamed-Slim Alouini (TAMUQ), Khalid Qaraqe (TAMUQ), Krishna Narayanan (TAMU), Henry Pfister (TAMU)	ECEN	\$575,710	Universal Signaling Schemes for Multimedia Transmission over Wireless Networks
Mohamed Nounou, Hazem Nounou	CHEN	\$341,237	Improved Nonlinear Modeling using Multiscale Estimation
Michael Davis (TAMUQ), John Bryant (TAMUQ), Dennis O'Neal (TAMU)	MEEN	\$452,521	Development and Verification Of a VAV Air Distribution System Model Using Fan-Powered Terminal Units for Large Commercial Facilities
Hyunchul Nha (TAMUQ), Suhail Zubairy (TAMUQ)	PHYS	\$664,636	Quantum entanglement for secure communication
Ashfaq Bengali	CHEM	\$605,895	The Influence Of Electronic And Steric Effects On The Reactivity Of The Metal-(η <sup>2</sup> -Aromatic) Bond: A Laser Flash Photolysis Study With Infrared Detection
Milivoj R. Belić	PHYS	\$748,558	Nonlinear Photonics for All-optical Telecommunication and Information Technologies
Michael Pilant (TAMU), Richard Ewing (TAMU) Yalchin Efiendiev (TAMU), Ahmed Abdel-Wahab (TAMUQ)	MATH	\$722,042	Development of a Computational Groundwater Model for Qatar
Hassan S. Bazzi (TAMUQ), David Bergbreiter (TAMU)	CHEM	\$744,980	Synthesis, characterization and applications of novel lipophilic metathesis catalysts
Hassan S. Bazzi (TAMUQ), Hanadi S. Sleiman (McGill)	CHEM	\$638,848	Novel biodetection methods
Hans A. Schuessler (TAMU), Milivoj Belić (TAMUQ)	PHYS	\$749,948	Utilizing Laser Spectroscopy of Noble Gas Tracers for Mapping Oil and Gas Deposits
<b>TOTAL NPRP GRANTS</b>		<b>\$12,070,349</b>	

### Qatar National Research Fund

#### National Priorities Research Program

Founded in 2006 as part of Qatar Foundation for Education, Science and Community Development, QNRF is the primary research funding component for the State of Qatar. In the first cycle of funding for QNRF's National Priorities Research Program, Texas A&M at Qatar was awarded 20 research grants totaling \$12 million for research projects.

# Admissions

*countries represented  
in the 2008  
application pool*

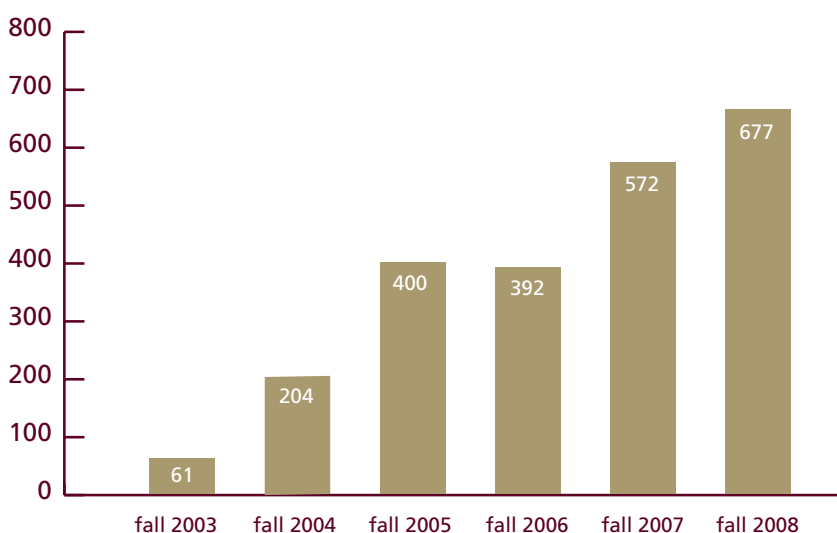
- Algeria
- Australia
- Bahrain
- Belgium
- Bangladesh
- Canada
- Egypt
- France
- Indonesia
- India
- Iran
- Iraq
- Jordan
- Korea
- Kuwait
- Lebanon
- Libya
- Malaysia
- Nigeria
- Oman
- Pakistan
- Palestine
- Philippines
- Qatar
- Saudi Arabia
- Somalia
- South Africa
- Sri Lanka
- Sudan
- Syria
- Tunisia
- Turkey
- United Arab Emirates
- United Kingdom
- United States
- Yemen

The number of applications for admission submitted to Texas A&M at Qatar continues to increase at a rapid rate, which is an indication that the recruitment strategies for the engineering programs offered at the campus are effective and quite on target. The submissions increased by 15 percent over last year, and given the early interest that admissions staff are receiving from students who will graduate from high school next year, it is anticipated that next year's submissions will surpass this year's. Applicants continue to be a healthy mix of Qatari and international students, as well as a good mix of males and females.

The recruitment plan continues to focus on seeking qualified Qatari candidates, so all major recruitment efforts and events are conducted to not only encourage qualified Qatari candidates, but to assist them through the application process. During 2007–2008, about 6,015 students met with admissions staff as part of organized school visits on campus or at various high schools in Qatar and the Gulf. Admissions staff, together with other admissions officials from partner institutions in Education City, visited local and international schools every Monday and hosted schools in Education City every Thursday. Moreover, the recruitment team participated in college nights at the Academic Bridge Program and in high schools in Qatar to introduce students and their parents to admissions requirements for engineering programs at Texas A&M. Admissions staff met with around 1,700 students in college fairs.

The University's admissions staff hosted two events in fall 2007, Qatar counselors' day and counselors' iftar, to network and cultivate relationships with counselors in Doha.

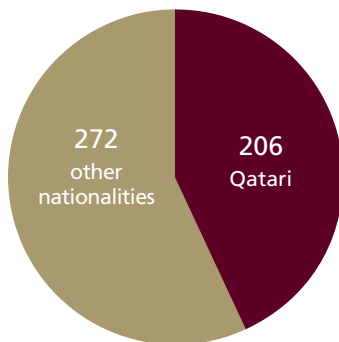
## complete admissions applications, fall 2003–fall 2008



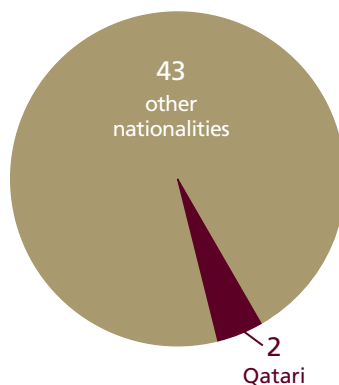


## admissions for fall 2008

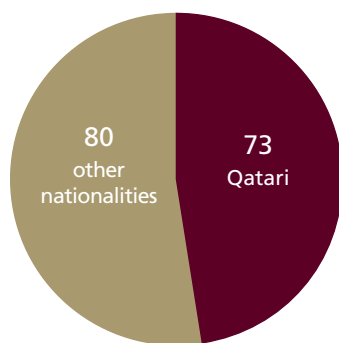
### applications that met admissions requirements



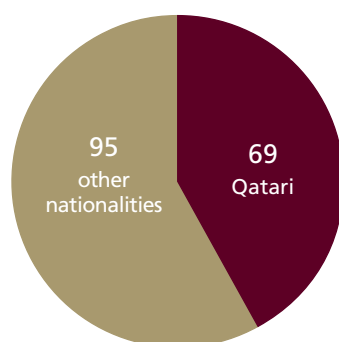
### academic admissions



### interviews granted



### total admitted students



The promotion of the program continues to be a joint venture with partner institutions in Education City. The third annual Discover Education City event was held at the Ritz-Carlton Doha in October 2007; an estimated 800 students and parents participated. The same program was subsequently held in other GCC cities, but with the added feature of school visits before and after the recruitment events. Coupled with this event, high school counselors were invited to attend the Education City Regional Counselor Institute, held in Doha, Qatar. Comprising of both regional and local counselors, this milestone event was created to acquaint counselors to the programs offered in Education City and to encourage the necessary cooperation and partnerships between admissions officers and school counselors.

The Office of Admissions and Records continues to work with University faculty on designing and implementing outreach programs for local schools. The math olympiad competition is a good example of such programs in which faculty, admissions staff and officials from Omar Bin Al Khatib Scientific School for Boys collaborated to carry out this endeavor, which included participants mainly from Qatar high schools and a few others from neighboring countries. These are the types of strategies needed to increase applications from Qataris.

As in previous years, 100 percent of applicants applied online. Similar to academic admissions standards at the main campus, candidates are automatically admitted if they meet the following criteria: SAT math of 650 or higher, TOEFL IBT score of 100 or higher and a minimum high





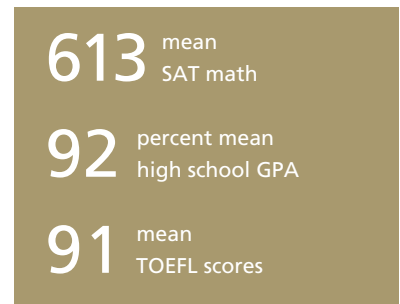
school average of B; 45 students were admitted as academic admits for fall 2008 enrollment.

Several academically strong Qatari students were provisionally admitted into the Aggie Opportunity Program (AOP) for fall 2008. The program is designed to offer high achieving Qatari students who do not meet the minimum test scores the chance to enroll in courses at Texas A&M at Qatar for two semesters. The terms of the program are successful attendance in fall 2008 and spring 2009 semesters with a minimum achievement of a 2.0 GPR in all combined academic coursework and completion of at least 24 hours at Texas A&M at Qatar.

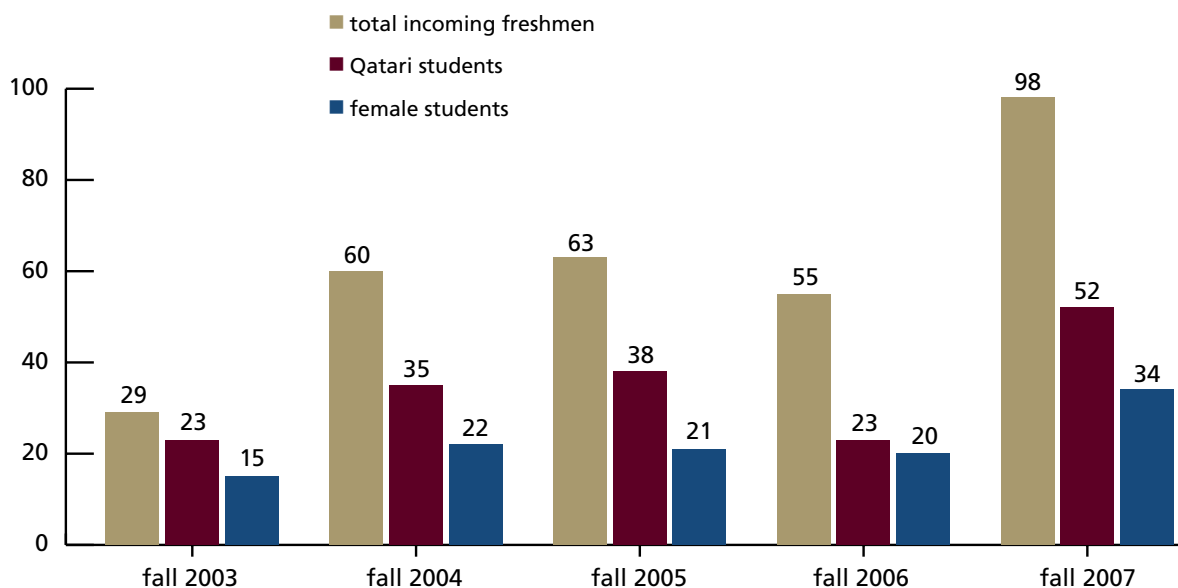
Students who meet these criteria can become full-time engineering students. In fall 2007, nine Qatari students were admitted in AOP. Seven of the nine students have met the program's criteria and are now full-time engineering students. For fall 2008, 20 Qatari students are expected to enroll at Texas A&M at Qatar through the Aggie Opportunity Program.

Finally, the main campus is implementing a new student information management system that is scheduled for implementation this fall. Texas A&M at Qatar is following the same schedule, and the Office of Admissions and Records plans to start using the new system, named Compass, in September 2008.

*credentials of students  
admitted for fall 2008*



**student distribution of incoming cohorts**

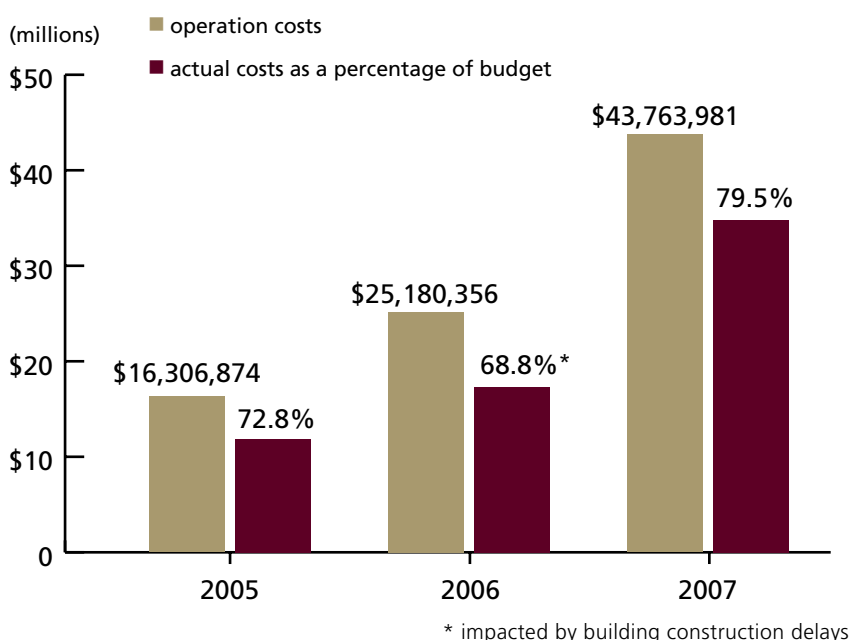


# Operations

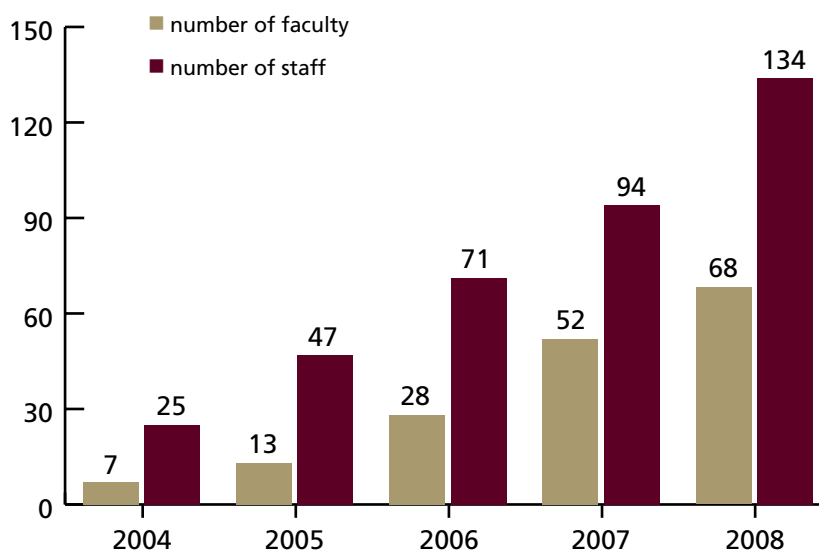
## Finance

As student enrollment grows, academic and administrative support for the program also expands and expenditures related to the operation of this campus have also grown. The nearby chart summarizes costs for the past three years. Also, as the University approaches steady state, administrators have greater ability to align cost estimates developed through the budget process to actual operational outcomes. Projections and analysis indicate that actual costs in the year ending 30 June 2008 will exceed 90 percent of the budget.

### budget and actual costs as a percentage of budget



### faculty and staff for years ending 2004–2008



## Human Resources

Texas A&M at Qatar faculty and staff numbers increased during the 2007–2008 fiscal year. The University had a total of 202 employees at year end—this is a significant increase over the prior fiscal year. The payroll included 134 administrative, support and technical staff, 44 of whom are locally hired employees and 90 are expatriates. As of 30 June 2008, the University had a total of 68 faculty.

The University's growth during the upcoming year will be in the areas of research and graduate studies. The outlook for the upcoming year includes 35–40 new employees, most of whom will be post-doctoral researchers and graduate and research assistants.

The human resources department will continue its focus on providing support to faculty and staff in these key areas of responsibility:

- **immigration** The key to success with this endeavor is to maintain open and excellent communication with employees, prospective employees and their families while strengthening relationships and trust with Qatar Foundation's immigration personnel.
- **human resources operations** This includes enhancements and data input to the Human Resource Information System (HRIS), close ties with the University's finance department, timely contracting with faculty and staff, close liaison with the Qatar Support Office, and reporting HR-related information and statistics to senior administration.
- **housing** This vital area of responsibility has grown to more than 200 housing units under lease. Customer satisfaction is the key result the office seeks to achieve.
- **employee relations** Human resources staff strive to be a trusted source of information and support to faculty and staff regarding all benefit and compensation programs, employment-related issues and employee development.

Human resources will continue to emphasize several strategic themes in the upcoming year, including:

- focusing on systems, not exceptions
- accountability
- new, expanded support to research and graduate studies while maintaining support to the rest of the University
- focusing on staff professional development

## Information Technology Services

This has been a remarkable year of growth and service for Information Technology Services (ITS). Over the past year, ITS coordinated the move to the Texas A&M Engineering Building while continuing to finalize infrastructure in the new building and provide support and new services to faculty, staff and students. In addition, ITS started new initiatives to enhance collaboration in technology with the campus community.

### The Move

ITS coordinated the move from the Liberal Arts and Science Building (LAS) to the Engineering Building. More than 6,000 network ports were already activated and ready for the building's new occupants, the phone system was ready with new VoIP phones and wireless coverage was available in high usage areas of the building. ITS coordinated with University departments to move classrooms, labs, and faculty and staff offices.

#### comparison of computer resources before and after the move

	LAS Building June 2007	Engineering Building July 2008
office computers	137	250
lab computers	60	300+
laptops	275	550+
computer and engineering labs	9	33
AV-ready rooms (used by Texas A&M at Qatar)	11	37
network ports (managed by Texas A&M at Qatar)	approx. 1,500	6,100
VoIP telephone system		new
visualization system		new

### Classrooms and Teaching Labs

The Engineering Building has 33 labs where computers are used extensively for data acquisition, control of experiments, as simulators for complex systems, or as embedded controllers of experimental equipment. The chart below shows a breakdown of Engineering Building labs.

#### classroom and lab computer technology in the Texas A&M Engineering Building

room type	number	configuration
teaching labs	21	projectors, symposium, audio support
classrooms and computer labs	6	projectors, symposium, audio support, DVD
classrooms and computer labs	6	projectors, symposium, audio support, DVD, plasma screens
lecture halls	3	projectors, symposium, audio support, video conference
board room	1	plasma screens, DVD, audio support

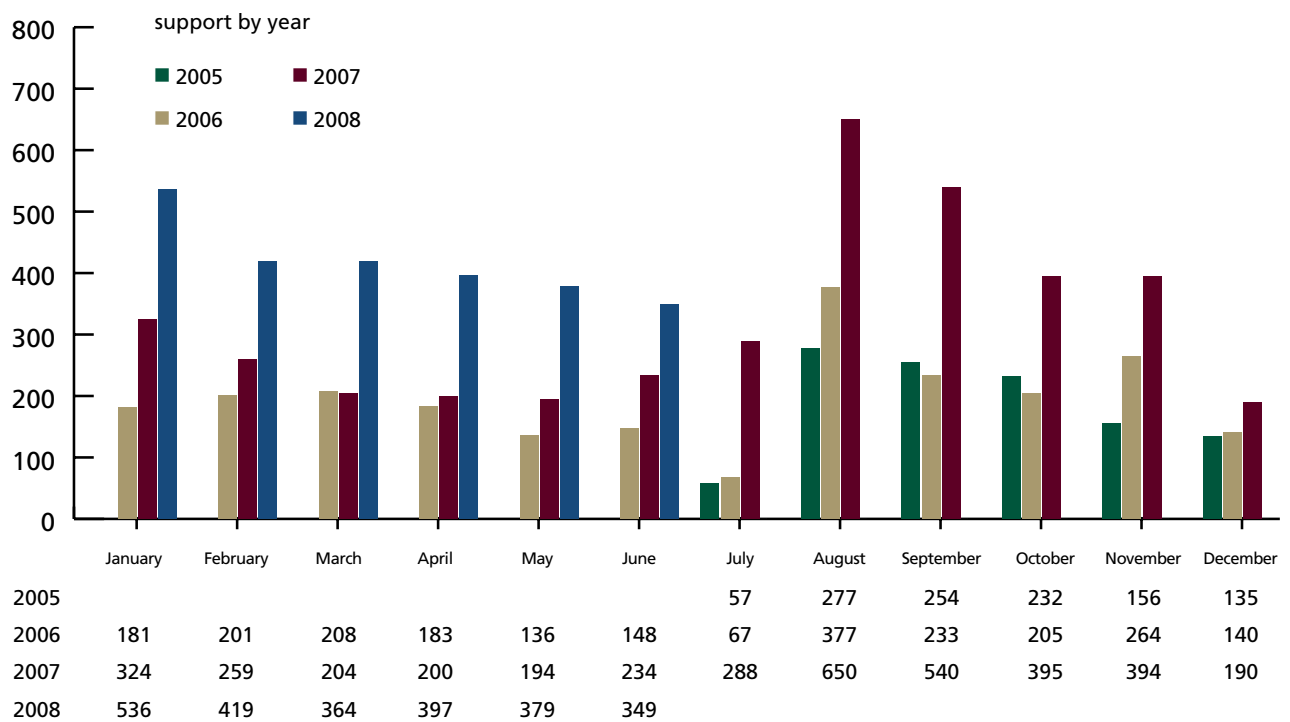
ITS staff from the user services and operations groups worked with the academic programs and their consultants to ensure software packages were available, hardware was installed and correctly set up, and that experimental equipment had the necessary connectivity.

The audiovisual system of the Engineering Building continues to undergo rigorous evaluation to ensure that all the equipment in the classrooms and the labs is operational. ITS staff are working with contractors to complete the final touches.

### Continued Support

Information Technology Services continues to provide support for ad-hoc requests through the help desk system.

### help desk ticket submissions 2005–2008



### Computing and Networking Infrastructure Upgrade

After moving the data center to the Engineering Building in January 2008, ITS started to define an upgrade plan that will include some major improvements to support the growing campus.

*The new supercomputing cluster, Suqoor, will be the center of computing, experimental and analysis activities when it goes online later this year.*

### **New Storage Area Network (SAN)**

The ITS operations group is working to acquire a SAN that will provide an extended data storage of 10 terabytes. The SAN also will enable data replication to a data center on the main campus for crisis management and business continuity planning.

### **New Cluster**

A new supercomputer cluster named Suqoor (Arabic for “falcons”) will serve as the computing engine for teaching and research projects as a cluster and as a Citrix farm (Citrix provides access to software applications from any location on the Internet). The cluster will offer 512 cores consisting of 64 8-way SMP nodes, two terabytes of distributed memory and a high speed interconnect to solve most of the demanding computing problems. This powerful system will be linked to a 60-terabyte shared storage system that will serve as a research data repository. The cluster will be the center of computing, experimental and analysis activities. Suqoor will go online later this year.

### **Immersive Visualization Facility**

The immersive visualization facility, known as the Cave, came online in early 2008. The facility has a curved projection screen that is capable of stereoscopic projection, which provides 3D images that could be viewed through electronically controlled goggles. It is being driven by an SGI Prism Extreme image generator, consisting of 20 Intel Itanium processors, 12 graphics cards, 64 gigabytes of memory and two terabytes of storage. The facility is running about six applications, including the major



visualization applications ParaView and Enight. The ITS Research Computing Group worked with faculty from the math department and the Immersive Visualization Facility from main campus to demonstrate the facility's capabilities during the second annual Doha Conference on Applied Mathematics and Computational Science. The system will be production ready before the fall 2008 semester.

### Enterprise Software

- **The Human Resource Information System** HRIS launched in August 2007. HR staff now rely on this system heavily and the faculty and staff use it to submit their leave requests. The system is being expanded with new modules to meet additional needs.
- **New Web site** The ITS Applications group worked with the Office of Marketing and Communications to develop the new University Web site. ITS is now working with programs and departments on updating their content through the RedDot content management system.
- **Training Registration System** A new training registration application is now available for the user community to easily register for training sessions offered by ITS. This system also will allow users to keep track of upcoming training sessions.
- **Projects in the pipeline** ITS is working on a new Web portal (Howdy), new student information system (Compass, formerly known as Banner), new asset management system (WiseTrack), and tools for wider deployment of data gathering and analysis (Vovici).

### Campus Wide Initiatives

- **IT Advisory Committee** A new Information Technology Advisory Committee has been selected by the campus community to provide effective input to ITS about issues and concerns for campus and the University's IT-related decisions.
- **Mobile phone coverage** ITS Operations worked with Qtel to provide mobile phone coverage in the Engineering Building. Forty-five antennas have been installed to ensure that all areas of the building are covered for GSM service. The ITS Operations group continues to work with Qtel on installing another 45 antennas to improve coverage.
- **Idea Exchange Series** ITS concluded the year with an invitation to faculty and academic staff for a colloquia titled "Teaching with Technology: Idea Exchange Series" in which members of the ITS user services group presented ideas and sought feedback from the audience in a discussion forum.

## Office of Marketing and Communications

As the year ended, Dean Weichold endorsed a plan to rename the Office of Public Affairs to the Office of Marketing and Communications. The change aligns the department's name with its growing portfolio of duties and it better reflects the breadth of services offered by the office.

During the past year the office spent significant time developing internal and external communications for the University. Marketing and Communications made significant strides in meeting ongoing goals of building awareness, brand recognition and preference for Texas A&M at Qatar. Staff worked to develop and implement a comprehensive communications strategy and broaden outreach programs and expand on existing engagements with the external community.

### Marketing & Communications Services

**Events** With the addition of a professional events coordinator and move to the new Texas A&M Engineering Building, the office has been able to increase the quality, and support an increase in quantity of University and departmental events. Following the move to the new building, the Events and Catering Guidelines were developed and the department serves as an internal consultant to the University for event planning.

**Branding and Creative Services** Implementing the Texas A&M Brand Guide has been ongoing since July 2007. The office worked with the Division of Marketing and Communications to create Texas A&M at Qatar-specific guidelines for logos and stationery as well as design standards for international paper sizes and for publications that contain Arabic translations. All printed publications have been redesigned to reflect the new look and voice of the University.

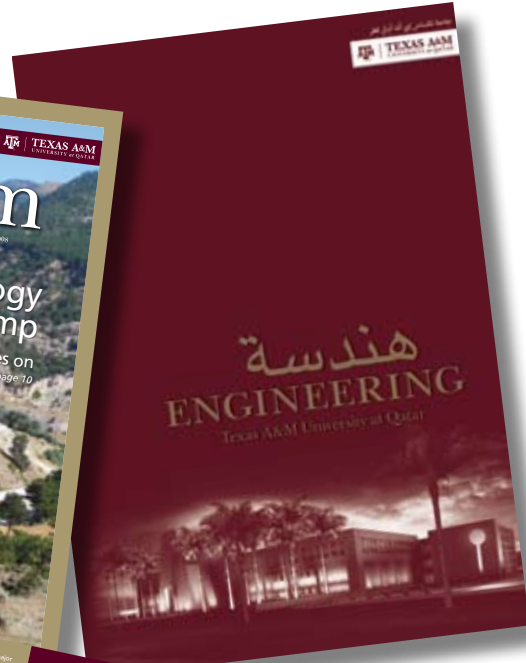
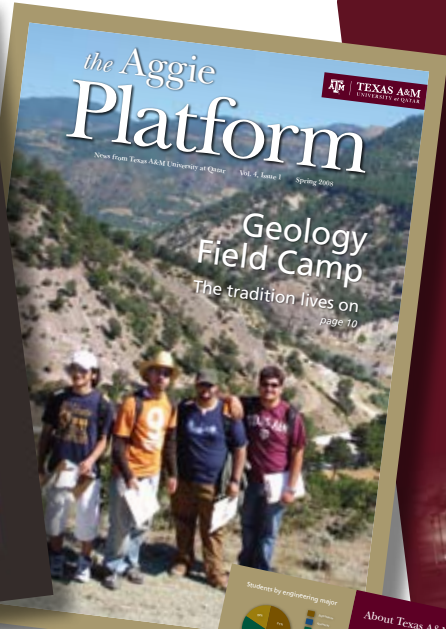
**Visitor Relations** In August 2007, the Aggie Student Ambassador Program was created with support from the Aggieland Visitor Center on main campus. After the selection of 12 ambassadors, they attended a mandatory three-hour training to learn information about the University, the campus, Education City, other universities in Education City and the Texas A&M Engineering Building.

Since the inception of the program, the Ambassadors have received top executives of BP, ConocoPhillips and RasGas, the senior minister of Singapore, Purdue University officials, the mayor of Calgary, Canada, a delegation from the Academy of Finland, and officials and legislators from Texas. Ambassadors also participated in an interview with BBC Arabia.

**Advertising** The office worked with the Office of Admissions and Records to create an advertising campaign for recruitment that included regional newspapers and Web sites. The series of advertisements was targeted for national and international prospective students, and their parents, and the messages were crafted to appeal to potential employers of graduates and potential research partners.

**Media** In addition to the international coverage received following the building celebration, Texas A&M at Qatar continues to receive regular coverage in local newspapers and regional publications in direct response to the Office's media strategies. *The New York Times*, CNN, PBS and Al-Jazeera are major news outlets that have covered Texas A&M at Qatar.





**Publications** Office staff developed and produced:

*The University showcase.* This piece was designed to be the standard for design and writing for future publications.

*The University style and usage manual,* a tremendous resource for faculty and staff who are developing communications materials for external consumption. The office worked with the Technical Communications Center to develop a comprehensive style manual. Marketing and Communications also made available copies of the Associated Press stylebook as a supplemental resource and will be developing a training session to teach administrative assistants how to use these tools in their daily work.

**News and Information Services** The office also developed:

An enhanced *Aggie Platform* that is published in a full magazine format.

*The Aggie Pipeline,* an electronic news and information service. The Pipeline is creating a digital archive and chronicle of news and happenings at Texas A&M at Qatar.

*The University snapshot,* a “Texas A&M at Qatar in 30 seconds” publication. The snapshot contains the most recent enrollment data and quick facts about Texas A&M. The snapshot will be updated and reprinted every six months.

**Web site and Multimedia** The Office of Marketing and Communications, in cooperation with ITS, redesigned the University Web site. The office anticipates being able to use the new site extensively with Web 2.0 media to increase the University’s exposure in the digital world. The office is working with ITS to use Web metrics tools that will gather information about users of University Web resources.

**publications**

The Office of Marketing and Communications redesigned the *Aggie Platform* and worked on a redesign for the University Web site this year. The office also developed two new publications, a *University showcase* brochure and a biannual *quick facts* snapshot.

## Environmental Health and Safety

*Environmental Health and Safety developed these programs for the University in the past year:*

- 24/7 emergency number program for employees and family members who find themselves in trouble in Qatar
- Chemical storage guidelines for laboratories and stockrooms
- Emergency communication strategies to be used during a crisis
- Compressed gas safety program for storage, use and transportation of compressed gas cylinders
- Building evacuation plans
- Foundry safety program
- Project safety analysis program for research projects
- Lab attire policy
- Lab safety and chemical hygiene plan to address safety issues in academic and research labs
- Radiation safety program with emphasis on the use of analytical X-ray equipment

The Environmental Health and Safety (EHS) Office opened in June 2007 just as the new Texas A&M Engineering Building opened. As this is a new office, all programs are being developed from scratch taking into consideration best management practices for safety and environmental stewardship while maintaining cultural sensitivity.

EHS is responsible for compliance with US, Texas and Qatar environmental and occupational safety regulations. Along with compliance, this office is also responsible for designing and implementing programs that ensure the safety of faculty, staff, students, visitors and other University users within applicable regulatory guidelines. EHS also provides regulatory compliance assistance, training programs, technical support, and building and lab inspections. EHS provides assistance during emergencies as well as aids in crisis management coordination.

Over the past year, EHS has developed an array of safety training programs for students and employees. The office also oversaw implementation of an electronic material safety data system. This system offers material safety data sheets to be viewed in various languages, including Arabic. Environmental Health and Safety worked with a security consultant to overhaul the University's crisis management plan.

In the coming year, EHS will work extensively with faculty, researchers and teaching associates to further develop safety policies and procedures for teaching and research labs. EHS also will develop and expand the University's crisis management procedures and work with Qatar Foundation on support issues critical to the University's emergency management strategies.



## Accreditation

Texas A&M at Qatar has operated under an extension of the College Station campus' SACS accreditation for its first five years, and is currently pursuing independent accreditation from the Accreditation Board for Engineering and Technology (ABET) for its engineering programs at the Qatar campus. This project has been a priority for the University throughout the 2007–2008 academic year.

A mock ABET review was held in January to help faculty and administrators identify shortcomings in the University's preparedness for the official ABET review. The mock visit was a thorough examination of all aspects of the engineering program, and evaluators offered constructive feedback on areas that needed work, and they found strong points in each of our programs and in the University as a whole.

Texas A&M at Qatar has completed its final documents for ABET accreditation and will undergo its official accreditation review in October.

## Employee recognition

Two Texas A&M at Qatar employees received awards for their exemplary work and service to Texas A&M this year. Hala Abdul-Jawad, a human resources services representative, received the president's meritorious service award in December. The president's meritorious service award is the highest honor for staff at Texas A&M, and only a small number of the awards are given each year.

Abdul-Jawad, a four-year employee of Texas A&M at Qatar, said she was honored by the award. She learned of the award after being asked to meet with Dean Mark Weichold, who, along with members of the executive staff, read a letter congratulating her. She received her award at a presentation ceremony in College Station on 11 Dec.

Patti Collins, coordinator of the wellness program in the Department of Student Affairs, received the University's Distinguished Achievement Award in April. Collins was notified of the award in a letter from Texas A&M President Elsa Murano, who wrote: "This award is testimony to the esteem in which you are held by your colleagues."

# Appendices

Appendix A contains citations for research published during the 2007–2008 academic year. Papers accepted for publication or presentation but not published or presented between 1 July 2007 and 30 June 2008 are not listed.

Appendix B contains citations of research funding received during the 2007–2008 academic year.

Appendix C lists institutions and agencies Texas A&M at Qatar collaborated with in the 2007–2008 academic year.

## Appendix A

### Faculty publications for the 2007–2008 academic year

#### CHEMICAL ENGINEERING

##### Ahmed Abdel-Wahab

###### Journal Publications

**Abdel-Wahab, A., and B. Batchelor.** “Interactions Between Chloride and Sulfate or Silica Removals from Wastewater Using an Advanced Lime-Aluminum Softening Process: Equilibrium Modeling.” *Water Environment Research* 79, No. 5 (2007): 528–535

**Shamrukh, M., and A. Abdel-Wahab.** “Riverbank Filtration for Sustainable Water Supply.” *Clean Technologies and Environmental Policy*, ISSN1618–954X (2008).

###### Refereed Conference Publications

**Abdel-Wahab, A., K.M. Amer, and M. Shamrukh.** “An Advanced Technology for Groundwater Treatment in the Northern Aquifer of the State of Qatar.” Paper presented at the 8th Gulf Water Science and Technology Association Conference Proceedings, Manama, Kingdom of Bahrain, 3–6 March 2008.

##### Dragonmir B. Bukur

###### Journal Publications

**Bukur, D.B., T. Olewski, and G.F. Froment.** “Product Distribution on an Iron Fischer-Tropsch Catalyst in a Stirred-Tank Slurry Reactor.” *Am. Chem. Soc., Div. Fuel Chem.* 53, No. 1 (2008): 164–166.

###### Refereed Conference Publications

**Bukur, D.B.** “Product Distributions and Reaction Pathways on Catalysts for CTL and GTL Conversion Processes.” Paper presented at QAFCO-TAMUQ Chemistry Conference 2008, Doha, Qatar, 9 Jan. 2008.

**Bukur, D.B., X. Lang, and A. Grujic.** “Fischer-Tropsch Synthesis in Supercritical Propane.” Paper presented at 11th Eu-

ropean Meeting on Supercritical Fluids, Barcelona, Spain, 4–7 May 2008.

**Bukur, D.B., T. Olewski, and G.F. Froment.** “Product Distribution on an Iron Fischer-Tropsch Catalyst in a Stirred-Tank Slurry Reactor.” Paper presented at ACS National Meeting, New Orleans, Louisiana, United States, 6–10 April 2008.

###### Other Publications, Including Research Reports for Sponsors

**Bukur, D.B.** “Attrition Studies with Catalysts for Slurry Phase Fischer-Tropsch Synthesis.” Lyondel Chemical Company, Newtown Square, Pennsylvania, United States, 12 July 2007.

**Bukur, D.B.** “Technological Advances in GTL and CTL Processes.” Quantum Sphere, Inc., Santa Ana, California, United States, 30 July 2007.

##### Patrick Linke

###### Journal Publications

**Du., D., S. Yang, A.C. Kokossis, and P. Linke.** “Experience on Gridification and Hyper-infrastructure Experiments in Optimization and Process Synthesis.” *Computer-Aided Chemical Engineering* 24, (2007): 171–176.

**Labrador-Darder, C., A.C. Kokossis, and P. Linke.** “On the Systematic Extraction of Knowledge in Process Synthesis and Chemical Process Design.” *Computer-Aided Chemical Engineering* 24, (2007): 267–272.

**Linke, P., and A.C. Kokossis.** “A Multi-Level Methodology for Conceptual Reaction-Separation Process Design.” *Journal of Chemical Product and Process Modeling* 2, No. 3, article 2 (2007): 1–42.

**Montolio-Rodriguez, D., D. Linke, and P. Linke.** “Systematic Identification of Optimal Process Designs for the Production of Acetic Acid Via Ethane Oxidation.” *Chemical Engineering Science* 62 (2007): 5602–5608.

###### Refereed Conference Publications

**Du, D., R. Badia, P. Linke, and A.C. Kokossis.** “Emerging Cyberinfrastructure Capabilities and Opportunities.” Paper No. 227d, presented at AIChE Annual Meeting, Salt Lake City, Utah, United States, 4–9 Nov. 2007.

**Labrador-Darder, C., A.C. Kokossis, and P. Linke.** “On the Systematic Extraction of Knowledge in Process Synthesis and Chemical Process Design.” Paper No. 140f, presented at AIChE Annual Meeting, Salt Lake City, Utah, United States, 4–9 Nov. 2007.

##### Mohamed N. Nounou

###### Journal Publications

**Mahmoud, M.S., M.N. Nounou, and H.N. Nounou.** “Analysis and Synthesis of Uncertain Switched Discrete Time Systems.” *IMA Journal of Mathematical Control and Information* 24, No. 2 (2007): 245–257.

**Nounou, M.N. and H.N. Nounou.** “Improving the Prediction and Parsimony of ARX Models using Multiscale Estimation.” *Applied Soft Computing Journal* 7 (2007): 711–721.

**Nounou, M.N., H.N. Nounou, and M.S. Mahmoud.** “Robust Adaptive Sliding-Mode Control for Continuous Time Delay Systems.” *IMA Journal of Mathematical Control and Information* 24, No. 3 (2007): 299–313.

###### Refereed Conference Publications

**Nounou, H.N., and M.N. Nounou.** “Resilient Delay-Dependent Adaptive Control of Uncertain Time-Delay Systems.” Paper presented at the IEEE Conference on Decision and Control, New Orleans, Louisiana, United States, Dec. 2007.

**Nounou, M.N., and H.N. Nounou.** “Multiscale Nonlinear System Identification.” Paper presented at the IEEE

Conference on Decision and Control, New Orleans, Louisiana, United States, Dec. 2007.

## Simon Waldram

### Journal Publications

**Waldram S.P., D. Tee, and C. Ladlow.** "Adiabatic Runaway Reaction, Blowdown, Quench and Inhibition in Fire-Engulfed Vessels: an Experimental Study." *Process Safety Progress* 27, No. 3, (2008).

### Refereed Conference Publications

**Waldram, S.P.** "Revealing as Much Information as Possible—but No More—from Screening Experiments for Thermal Hazards." Paper presented at the First Latin American Process Safety Conference and Exhibition, CCPS of the AIChE, Buenos Aires, Argentina, 27–29 May 2008.

**Waldram, S.P., and S. Mannan.** "Loss of Control and Reactor Rupture during a Runaway Reaction whilst Producing and Azo Dye Intermediate." Paper presented at the First Latin American Process Safety Conference and Exhibition, CCPS of the AIChE, Buenos Aires, Argentina, 27–29 May 2008.

## ELECTRICAL & COMPUTER ENGINEERING

### Haithem Abu–Rub

#### Refereed Conference Papers

**Abu–Rub, H. and J. Holtz.** "Rotor Oriented Nonlinear Control System of Induction Motors Operating at Field Weakening." Paper presented at 33rd Annual Conference of the IEEE Industrial Electronics Society, Taipei, Taiwan, Nov. 2007.

**Abu–Rub H., N. Oikonomou, and J. Holtz.** "Sensorless Observer System for Induction Motor Control." Paper presented at 39th IEEE Power Electronics Specialists Conference, Rhodes, Greece, 2008.

**Ahmed, S. and H. Abu–Rub.** "Instantaneous Reactive Power Based Sensorless Control of Sinusoidally Wound Surface Mount PM Motors." Paper presented at International Exhibition and Conference for Power Electronics, Intelligent Motion Power Quality, Germany, 2008.

**Shehadeh H., H. Abu–Rub. and S. Ahmed.** "Robust Observer System with Sliding Mode Field Oriented Control of Induction Motors." Paper presented at 12th International Middle East Power Systems Conference, Egypt, 2008.

### Shehab Ahmed

#### Refereed Conference Publications

**Ahmed, S.** "Hard Switched MOSFET Inverter for Elevated Temperature Applications." Paper presented at 39th IEEE Power Electronics Specialists Conference, Rhodes, Greece, 2008.

**Ahmed, S. and H. Abu–Rub.** "Instantaneous Reactive Power Based Sensorless Control of Sinusoidally Wound Surface Mount PM Motors." Paper presented at International Exhibition and Conference for Power Electronics, Intelligent Motion Power Quality, Germany, 2008.

**Shehadeh H., H. Abu–Rub, and S. Ahmed.** "Robust Observer System with Sliding Mode Field Oriented Control of Induction Motors." Paper presented at 12th International Middle East Power Systems Conference, Egypt, 2008.

### Hussein M. Alnuweiri

#### Journal Publications

**Mohamed, A. and H. Alnuweiri.** "Cross-Layer Distributed Approach for Optimal Rate Allocation for Homogeneous Wireless Multicast." *IET (formerly IEE) Communications Journal* 1, No. 5, Special issue on Mobile Wireless Communications: Cross-Layer Communications (2007): 838–845.

#### Refereed Conference Publications

**Beraldi, R., and H. Alnuweiri.** "Event Diffusion in Wireless Mesh Networks using Random Linear Network Coding." Paper presented at 2nd International Conference on Distributed Event-Based Systems, Rome, Italy, June 2008.

**Khattab, T., M. Elakashlan, and H. Alnuweiri.** "A New Simple Method for Calculating the Bit Error Rate of OCDMA Systems." Paper presented at IEEE Symposium on Computers and Communications, Portugal, July 2007.

**Khattab, T., M. Elakashlan, and H. Alnuweiri.** "A New Simple Order-Based Multiple Access Scheme." Paper presented at IEEE Symposium on Computers and Communications, Portugal, July 2007.

**Mohamed, A., and H. Alnuweiri.** "Wireless Multicast Cross-Layer Framework for Rate Allocation: Protocol Design." Paper presented at IEEE Future Multimedia Networks, Wales, United Kingdom, 2008.

**Pourmohammadi F., Y., P. Nasiopoulos, and H. Alnuweiri.** "Scheduled and Contention Access Transmission of Partitioned H.264 Video over WLANs." Paper presented at IEEE Globecom, Nov. 2007.

### Mohamed–Slim Alouini

#### Journal Publications

**Choi, S.Y., M.S. Alouini, K.A. Qaraqe, and H.C. Yang.** "Finger Assignment Schemes for RAKE Receivers with Multiple-Way Soft Handover." *IEEE Transactions on Wireless Communications* 7, No. 2 (2008): 495–499.

**Hassel, V., D. Gesbert, M.S. Alouini, M.S., and G.E. Oien,** "A Threshold-Based Channel State Feedback Algorithm for Modern Cellular Systems." *IEEE Transactions on Wireless Communications* 6, No. 7 (2007).

**Ko, Y.C., H.C. Yang, S.S. Eom, and M.S. Alouini.** "Adaptive Modulation with Diversity Combining Based on Output-Threshold MRC." *IEEE Transactions on Wireless Communications* 6, No. 10 (2007): 3728–3737.

**Yang, L. and M.S. Alouini.** "Level Crossing Rate over Multiple Independent Random Processes—An Extension of the Applicability of the Rice Formula." *IEEE Transactions on Wireless Communications* 6, No. 12 (2007).

#### Refereed Conference Publications

**Abu Al-Kheir, A., K.A. Qaraqe, and M.S. Alouini.** "On the Space-Time Correlation of MIMO Fading Channels in 3D Scattering Models." Paper presented at 13th IEEE Symposium on Computers and Communications, Marrakech, Morocco, July 2008.

**Abu Al-Kheir, A., K. Qaraqe, and M.S. Alouini.** "Space-Time Channel Correlation of MIMO Rayleigh Fading Based on Non-Isotropic 3D Scattering." Paper presented at IEEE International Conference on Signal Processing and Communication, Dubai, United Arab Emirates, Nov. 2007.

**Al-Shoukairi, M., K.A. Qaraqe, M.S. Alouini, and E. Serpedin.** "Performance of Hard Handoff in 1xEV-DO REV A. Systems with the Presence of Rayleigh and Correlated Lognormal Components." Paper presented at Fifth IEEE Consumer Communications Networking Conference, Las Vegas, Nevada, United States, Jan. 2008.

**Ben Doua, A., S. Choi, M.S. Alouini, and K.A. Qaraqe.** "Adaptive RAKE Combining Schemes in the Soft Handover Region." Paper presented at 13th IEEE Symposium on Computers and Communications, Marrakech, Morocco, July 2008.

**Ben Halima S., M.S. Alouini, and K.A. Qaraqe.** "Achieving Fairness in Joint MS-GSC Combining and Multiuser High-Speed Data Scheduling." Paper present-

- ed 5th International IEEE/EURASIP Workshop on Signal Processing and its Applications, Sharjah, United Arab Emirates, March 2008.
- Ben Halima, S., M.S. Alouini, and K.A. Qaraqe.** "Effect of Feedback Errors on Joint MS-GSC Combining and Multiuser Downlink Scheduling." Paper presented at Mosharaka Multi-Conference on Communications, Networking and Information Technology, Amman, Jordan, Dec. 2007.
- Ben Halima, S., M.S. Alouini, and K.A. Qaraqe.** "Joint MS-GSC Combining and Multi-User High Speed Data Scheduling." Paper presented at IEEE International Conferences on Information, Communications and Signal Processing, Singapore, Dec. 2007.
- Bouida, Z., M.S. Alouini, and K. Qaraqe.** "Improving the Processing Power Efficiency of Minimum Selection GSC with Adaptive Modulation and Post-Combining Power Control." Paper presented at IEEE International Conference on Signal Processing and Communication, Dubai, United Arab Emirates, Nov. 2007. (Recipient of Best Paper Award.)
- Choi, S.Y., M.S. Alouini, and K.A. Qaraqe.** "Finger Management Schemes for Minimum Call Drop in the Soft Handover Region." Paper presented at IEEE Personal, Indoor, and Mobile Radio Communication Conference, Athens, Greece, Sept. 2007.
- Choi, S.Y., M.S. Alouini, K.A. Qaraqe, and H.C. Yang.** "A Practical Study of Finger Assignment Schemes in the Soft Handover Region with Multiple Base Stations." Paper presented at IEEE International Symposium on Signal, Circuits, and Systems, Romania, July 2007.
- Choi, S.Y., M.S. Alouini, K.A. Qaraqe, and H.C. Yang.** "Finger Replacement Schemes for RAKE Receivers in the Soft Handover Region with Multiple Base Stations." Paper presented at IEEE Personal, Indoor, and Mobile Radio Communication Conference, Athens, Greece, Sept. 2007.
- Gjendemsjo, A., H.C. Yang, G. Oien, and M.S. Alouini.** "Joint Adaptive Modulation, Diversity Combining, and Power Control for Downlink Transmission in Two-Cell Wireless Networks." Paper presented at Proceedings of the Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, California, United States, Nov. 2007.
- Gjendemsjo, A., H.C. Yang, M.S. Alouini, and G. Oien.** "Joint Adaptive Modulation, Diversity Combining, and Power Control for Uplink Transmission in Two-Cell Wireless Networks." Paper presented at IEEE International Symposium on Wireless Communication Systems, Trondheim, Norway, Oct. 2007.
- Halawani, H., M.O. Hasna, and M.S. Alouini.** "Power Loading Algorithms for SEC Diversity Schemes." Paper presented at 7th IEEE International Symposium on Signal Processing and Information Technology, Cairo, Egypt, Dec. 2007.
- Hossain, Md. J., M.S. Alouini, and V. Bhargava.** "Queueing Delay Performance of Hierarchical Modulation Assisted Two-Best User Opportunistic Scheduling in Wireless Networks." Paper presented at IEEE International Conference on Communications, Beijing, China, June 2008.
- Hossain, Md. J., M.S. Alouini, and V. Bhargava.** "Two-User Opportunistic Scheduling Using Hierarchical Modulations in Wireless Networks with Heterogenous Average Link Gains." Paper presented at IEEE International Conference on Communications, Beijing, China, June 2008.
- Hwang, K.S., Y.C. Ko, and M.S. Alouini.** "Outage Probability of Cooperative Diversity Systems with Opportunistic Relaying Based on Decode-and-Forward Transmission." Paper presented at IEEE Vehicular Technology Conference, Singapore, May 2008.
- Hwang, K., Y.C. Ko, and M.S. Alouini.** "Performance Analysis of Opportunistic Incremental Relaying with Adaptive Modulation." Paper presented at IEEE International Symposium on Wireless Pervasive Computing 2008, Santorini, Greece, May 2008.
- Hwang, K.S., Y.C. Ko, and M.S. Alouini.** "Slow Antenna Selection and Fast Link Adaptation MIMO Systems." Paper presented at the 6th ACS/IEEE International Conference on Computer Systems and Applications, Doha, Qatar, March 2008.
- Kobravi, A., M. Shikh Bahaei, M., M.S. Alouini, and A. Georgakis.** "LDPC Coded Adaptive Transmission over Fading Channels." Paper presented at IEEE Wireless Communications and Networking Conference, Las Vegas, Nevada, United States, April 2008.
- Laourine, A., M.S. Alouini, S. Affes, and A. Stephen.** "On the Capacity of Generalized-K Fading Channels." Paper presented at IEEE Global Communications Conference, Washington, D.C., United States, Nov. 2007. (Recipient of Best Paper Award of the Wireless Communication Symposium.)
- Laourine, A., M.S. Alouini, A. Stephen, and S. Affes,** "On the Performance Analysis of Composite Multipath/Shadowing Channels using the G-Distribution." Paper presented at IEEE International Conference on Communications, Beijing, China, June 2008.
- Nam, S., M.S. Alouini, and K.A. Qaraqe.** "Performance Evaluation of Threshold-Based Power Allocation Algorithms for Down-Link Switched-Based Parallel Scheduling." Paper presented at IEEE International Conferences on Information, Communications and Signal Processing, Singapore, Dec. 2007.
- Nam, S., M.S. Alouini, K.A. Qaraqe, and H.C. Yang.** "Threshold-Based Parallel Multiuser Scheduling." Paper presented at IEEE Personal, Indoor, and Mobile Radio Communication Conference, Athens, Greece, Sept. 2007.
- Nam, S., H.C. Yang, M.S. Alouini, and K.A. Qaraqe.** "Threshold-Based Power Allocation Algorithms for Down-Link Switched-Based Parallel Scheduling." Paper presented at 5th International IEEE/EURASIP Workshop on Signal Processing and its Applications, Sharjah, United Arab Emirates, March 2008.
- Tourki, K., M.S. Alouini, and L. Deneire.** "Blind Cooperative Diversity Using Distributed Space-Time Coding in Block Fading Channels." Paper presented at IEEE International Conference on Communications, Beijing, China, June 2008.
- Tourki, K., M.S. Alouini, and L. Deneire.** "Blind Cooperative Diversity with Multiple Relays." Paper presented at IEEE International Symposium on Wireless Pervasive Computing, Santorini, Greece, May 2008.

## Joseph J. Boutros

### Journal Publications

- Kraidy, G.M., J.J. Boutros, and A. Guilleni Fabregas.** "Approaching the Outage Probability of the Amplify-and-Forward Relay Fading Channel." *IEEE Communications Letters* 11, No. 10 (2007): 808–810.

### Refereed Conference Publications

- Kraidy, G.M., N. Gresset, and J.J. Boutros.** "Coding for the Non-Orthogonal Ampli-

fy and Forward Cooperative Channel.” Paper presented at IEEE Information Theory Workshop, Lake Tahoe, California, United States, Sept. 2007.

## Prasad Enjeti

### Journal Publications

**Abolhassani M., P. Enjeti, and H. Toliyat.** “Integrated Doubly Fed Electric Alternator/Active Filter (IDEA), a Viable Power Quality Solution, for Wind Energy Conversion Systems.” *IEEE Transactions on Energy Conversion* 23 (2008).

**Asiminoaei, L., E. Aeloiza, P. Enjeti, and F. Blaabjerg.** “Shunt Active Power Filter Topology Based on Parallel Interleaved Inverters.” *IEEE Transactions on Industrial Electronics* 55, No. 3 (2008): 1175–1189.

**Kim, J. H., S.K. Sul and P. Enjeti,** “A Carrier Based PWM Method with Optimal Switching Sequence for a Multilevel Four-Leg Voltage Source Inverter.” *IEEE Transactions on Industry Application* 44, No. 4 (2008).

### Refereed Conference Publications

**Ortiz, M., L. Moran, L. Palma, and P. Enjeti.** “A Dual Connected Passive Filter Scheme for PWM Converters.” Paper presented at IEEE PESC 2008 Conference, Rhodes, Greece, 15–19 June 2008.

**Palma, L., and P. Enjeti.** “A Cost Effective Power Converter to Improve CO Tolerance in PEM Fuel Cell Power Systems.” Paper presented at IEEE PESC 2008 Conference, Rhodes, Greece, 15–19 June 2008.

**Todorovic, M. H., M. Chellappan, L. Palma, and P. Enjeti.** “The Role of Supercapacitors in Designing Fuel Cell Powered Portable Applications.” Paper presented at IEEE PESC 2008 Conference, Rhodes, Greece, 15–19 June 2008.

## Krzysztof Arkadiusz Michalski

### Refereed Conference Publications

**Michalski, K.A. and M.I. Aksun.** “Discrete Complex Image Method for Planar Multilayers with Uniaxial Anisotropy.” Paper presented at 2nd European Conference on Antennas and Propagation, Edinburgh, United Kingdom, 11–16 Nov. 2007.

**Michalski, K.A., J.R. Mosig, and M.I. Aksun.** “Enhancing the Robustness of the Discrete Complex Image Method for Planar Multilayered Media.” Paper presented at Asia-Pacific Microwave Conference, Bangkok, Thailand, 11–14 Dec. 2007.

## Hazem N. Nounou

### Journal Publications

**Mahmoud, M.S., M.N. Nounou, and H.N. Nounou.** “Analysis and Synthesis of Uncertain Switched Discrete-Time Systems,” *IMA Journal of Mathematical Control and Information* 24, No. 2 (2007): 245–257.

**Nounou, H.N., and H. Ur-Rehman.** “Application of Adaptive Fuzzy Control to AC Machines.” *Applied Soft Computing Journal* 7, No. 3 (2007): 899–907.

**Nounou, M.N., and H.N. Nounou.** “Improving the Prediction and Parsimony of ARX Models using Multiscale Estimation.” *Applied Soft Computing Journal* 7, No. 3 (2007): 711–721.

**Nounou, M.N., H.N. Nounou, and M.S. Mahmoud.** “Robust Adaptive Sliding-Mode Control for Continuous Time-Delay Systems.” *IMA Journal of Mathematical Control and Information*, 24, No. 3 (2007): 299–313.

### Refereed Conference Publications

**Nounou, H.N., and M.N. Nounou.** “Resilient Delay-Dependent Adaptive Control of Uncertain Time-Delay Systems.” Paper presented at IEEE Conference on Decision and Control, New Orleans, Louisiana, United States, Dec. 2007.

**Nounou, M.N. and Nounou, H.N.,** “Multiscale Nonlinear System Identification.” Paper presented at IEEE Conference on Decision and Control, New Orleans, Louisiana, United States, Dec. 2007.

## Khalid A. Qaraqe

### Journal Publications

**Chaudhari, Q., E. Serpedin, and K. Qaraqe.** “On the Joint Synchronization of Clock Offset and Skew in Wireless Networks with Exponential Delay Profiles.” *IEEE Transactions on Signal Processing* (2007).

**Choi, S., M.S. Alouini, K. Qaraqe, and H.C. Yang.** “Finger Assignment Schemes for RAKE Receivers with Multiple-Way Soft Handover.” *IEEE Transactions on Wireless Communications* 7, No. 1 (2008): 474–478.

**Choi, S., M.S. Alouini, K. Qaraqe, and H.C. Yang.** “Soft Handover Overhead reduction by RAKE Reception with Finger Reassignment.” *IEEE Transactions on Communication* 56, No. 2, (2008).

**Noh, Y.L., Y.C. Wu, and K. Qaraqe.** “Extension of Pairwise Broadcast Clock Synchronization for Multi-Cluster Sensor Networks.” *EURASIP Journal on Advances in Signal Processing: Special Issue on Appli-*

*cations of Signal Processing to Wireless Sensor Networks.*

### Refereed Conference Publications

**Abu Al-Kheir, A., K. Qaraqe, and M.S. Alouini.** “On the Space-Time Correlation of MIMO Fading Channels in 3D Scattering Models.” Paper presented at 13th IEEE Symposium on Computers and Communications, Marrakech, Morocco, July 2008.

**Abu Al-Kheir, A., K. Qaraqe, and M.S. Alouini.** “Space-Time Channel Correlation of MIMO Rayleigh Fading Based on Non-Isotropic 3D Scattering.” Paper presented at IEEE International Conference on Signal Processing and Communication, Dubai, United Arab Emirates, Nov. 2007.

**Al-Shoukairi, M., K. Qaraqe, M.S. Alouini, and E. Serpedin.** “Performance of Hard Handoff in 1xEV-DO REV A. Systems with the Presence of Rayleigh and Correlated Lognormal Components.” Paper presented at 5th IEEE Consumer Communications and Networking Conference, Las Vegas, Nevada, Jan. 2008.

**Ben Doua, B.A., S. Choi, M.S. Alouini, and K. Qaraqe.** “Adaptive RAKE Combining Schemes in the Soft Handover Region.” Paper presented at 13th IEEE Symposium on Computers and Communications, Marrakech, Morocco, July 2008.

**Ben Halima, S., M.S. Alouini, and K. Qaraqe.** “Achieving Fairness in Joint MS-GSC Combining and Multiuser High-Speed Data Scheduling.” Paper presented at 5th International IEEE/EURASIP Workshop on Signal Processing and its Applications, Sharjah, United Arab Emirates, March 2008.

**Ben Halima, S., M.S. Alouini, and K. Qaraqe.** “Effect of Feedback Errors on Joint MS-GSC Combining and Multiuser Downlink Scheduling.” Paper presented at Mosharaka Multi-Conference on Communications, Networking and Information Technology, Amman, Jordan, Dec. 2007.

**Ben Halima, S., M.S. Alouini, and K. Qaraqe.** “Joint MS-GSC Combining and Multi-User High-Speed Data Scheduling.” Paper presented at IEEE International Conference on Information, Communications and Signal Processing, Singapore, Dec. 2007.

**Bouida, Z., M.S. Alouini, and K. Qaraqe.** “Improving the Processing Power Efficiency of Minimum Selection GSC with Adaptive Modulation and Post-Combining Power Control.” Paper presented at IEEE International Conference on

Signal Processing and Communication, Dubai, United Arab Emirates, Nov. 2007.

**Choi, S., M.S. Alouini, and K. Qaraqe.** "Finger Management Schemes for Minimum Call Drop in the Soft Handover Region." Paper presented at IEEE International Symposium on Personal, Indoor and Mobile Radio Communications, Athens, Greece, Sept. 2007.

**Choi, S., M.S. Alouini, K. Qaraqe, and H.C. Yang.** "A Practical Study of Finger Assignment Schemes in the Soft Handover Region with Multiple Base Stations." Paper presented at IEEE International Symposium on Signals, Circuits and Systems, Romania, July 2007.

**Choi, S., M.S. Alouini, K. Qaraqe, and H.C. Yang.** "Finger Replacement Schemes for RAKE Reception in the Soft Handover Region with Multiple Base Stations." Paper presented at IEEE International Symposium on Personal, Indoor and Mobile Radio Communications, Athens, Greece, Sept. 2007.

**Liu, L., J.F. Chamberland, and K. Qaraqe.** "Enabling Delay-Sensitive Applications Over Sensor Networking A Two-Tier Architecture and Multi-Antenna Cluster Heads." Paper presented at the Second International Workshop on Computational Advances in Multi-Sensor Adaptive Processing, St. Thomas, Virgin Islands, United States, Dec. 2007.

**Nam, S.S., M.S. Alouini, K. Qaraqe, and H.C. Yang.** "Threshold-Based Parallel Multiuser Scheduling Method." Paper presented at IEEE International Symposium on Personal, Indoor and Mobile Radio Communications, Athens, Greece, Sept. 2007.

**Nam, S.S., H.C. Yang, M.S. Alouini, and K. Qaraqe.** "Threshold-Based Power Allocation Algorithms for Down-Link Switched-Based Parallel Scheduling." Paper presented at IEEE International Conference on Information, Communications and Signal Processing, Singapore, Dec. 2007.

**Nam, S.S., H.C. Yang, M.S. Alouini, and K. Qaraqe.** "Threshold-Based Power Allocation Algorithms for Down-Link Switched-Based Parallel Scheduling." Paper presented at International IEEE/EURASIP Workshop on Signal Processing and its Applications, Sharjah, United Arab Emirates, March 2008.

## Erchin Serpedin

### Book Chapters

**Noh, K., Y.C. Wu, and E. Serpedin.** "Adap-

tive Signal Processing Techniques for Synchronization of Wireless Sensor Networks," in *Handbook: Adaptive Processing in Wireless Communications*. CRC Press: 2007.

### Journal Publications

**Chaudhari, Q., E. Serpedin, and K. Qaraqe.** "On the Joint Synchronization of Clock Offset and Skew in Wireless Networks with Exponential Delay Profiles." *IEEE Transactions on Signal Processing* (2007).

**Jeon, H.G., and E. Serpedin.** "A Novel Simplified Channel Tracking Method for MIMO-OFDM Systems with Null Sub-carriers," *Signal Processing, Elsevier*, (2007).

**Noh, K., Q. Chaudhari, E. Serpedin, and B. Suter.** "Novel Clock Phase Offset and Skew Estimation Using Two-Way Timing Message Exchanges for Wireless Sensor Networks." *IEEE Transactions on Communications* 55, No. 4 (2007): 766–777.

**Serpedin, E., H. Li, A. Dogandzic, H. Dai, and P. Cotaie.** "Signal Processing Techniques for Wireless Sensor Networks." *EURASIP Journal on Advances in Signal Processing*, (2007).

### Refereed Conference Publications

**Al-Shoukairi, M.S., M.S. Alouini, K. Qaraqe, and E. Serpedin.** "Performance of Hard Handoff in 1xEV-DO REV A. Systems with the Presence of Rayleigh and Correlated Lognormal Components." Paper presented at IEEE International Conference on Signal Processing and Communications, Nov. 2007.

**Chaudhari, Q., and E. Serpedin.** "Clock Synchronization in Wireless Sensor Networks with Deterministic Part of Delays Unknown." Paper presented at ICASSP 2008 Conference, March 2008.

**Chaudhari, Q., A. Shapoury and E. Serpedin.** "Estimation of Clock Parameters for Synchronization in Wireless Sensor Network." Paper presented at IEEE International Conference on Signal Processing and Communications, Nov. 2007.

**Chaudhari, Q., Y. Zhou, and E. Serpedin.** "Efficient Clock Synchronization in Wireless Sensor Networks." Paper presented at Asilomar 2007 Conference, Oct. 2007.

**Kim, J., Q. Chaudhari, and E. Serpedin.** "Particle Filtering Based Estimation of the Number of Competing Stations to Support Combined Access Modes in IEEE 802.11 Networks." Invited paper presented at IEEE Symposium on Signals, Circuits and Systems, 2007.

**Serpedin, E.** "Advances in Synchronization of Wireless Sensor Networks." Invited

paper presented at Workshop on Recent Advances in Signal Processing, Cluj-Napoca, Romania, July 2007.

**Shapoury, A., Q. Chaudhari, and E. Serpedin.** "On Error Magnitudes Under Spatial Aliasing of Wideband Arrays with Incoherent Combining." Paper presented at 2007 IEEE International Conference on Signal Processing and Communications, Nov. 2007.

**Zhao, W., K. Ajepong, E. Serpedin, and E. Dougherty.** "Identifying Drosophila Cell-cycle Regulated Genes from Irregular Microarray Data." Paper presented at ICASSP 2008, March 2008.

**Zhou, Y., H. Peksen and E. Serpedin.** "The True and the Modified Cramer-Rao Bounds for SNR Estimation for BPSK Modulated Signals." Paper presented at WoSPA 2008 Conference, March 2008.

## MECHANICAL ENGINEERING

### Alan Barhorst

#### Journal Publications

**Wong, C-N., and A. Barhorst.** "Stochastic Analysis of Poisson Impact Series Using Discrete Form, Spectrum Analysis and Time Correlation." *Mechanical Systems and Signal Processing* 21, No. 1 (2007): 151–164.

### Reza Langari

#### Refereed Conference Publications

**Kim, Y. and R. Langari.** "Nonlinear Identification and Control of a Building Structure with a Magnetorheological Damper." American Control Conference, July 2007.

**Sharifi, R. and R. Langari.** "A hybrid AANN-KPCA approach to sensor data validation." Proceedings of the 7th Conference on 7th WSEAS International Conference on Communications, Vouliagmeni, Athens, Greece, August 2007.

### Nesrin Ozalp

#### Journal Publications

**Ozalp, N. and B. Hyman.** "Allocation of Energy Inputs among the End-Uses in the U.S. Petroleum and Coal Products Industry." *Energy* 32, No. 8 (2007): 1460–1470.

#### Refereed Conference Publications

**Ozalp, N.** "Current Concentrating Solar Radiation Technologies for Environmental Generation of Steam, Power, and Hydrogen." Paper HEFAT2008–



ON2 presented at 6th International Conference on Heat Transfer & Fluid Mechanics & Thermodynamics, Pretoria, South Africa, 30 June–2 July 2008.

### Annie Ruimi

#### *Refereed Conference Publications*

**Ruimi, A., Y. Liang and R. McMeeking.** “UHF aluminum nitride FBAR trampoline-shape resonators with gold-aluminum electrodes and silicon substrate with through thickness vibrations: computational performance.” Paper presented at the International Conference on Smart Materials and Adaptive Structures: Mathematical Modeling and Computation, Tangier, Morocco, 14–16 April 2008.

### Reza Tafreshi

#### *Refereed Conference Publications*

**Ahmed, B., R. Tafreshi, and R. Langari.** “Advances in Automatic Sleep Analysis.” Paper presented at the International Conference on Biomedical Engineering and Informatics, Hainan, China, 2008.

**Zandi, A., G. Dumont, M. Javidan, R. Tafreshi, C.R. Ries, B.A. MacLeod, and E. Pull.** “A Novel Wavelet-Based Index to Detect Epileptic Seizures Using Scalp EEG Signals.” Paper presented at the IEEE International Conference of the Engineering in Medicine and Biology Society, Vancouver, Canada, 2008.

**Zandi, A., R. Tafreshi, G. Dumont, C.R. Ries, B.A. MacLeod, and E. Pull.** “Electroconvulsive Therapy: A Model for Seizure Detection by a Wavelet Packet Algorithm.” Paper presented at the IEEE International Conference of the Engineering in Medicine and Biology Society, Lyon, France, 2007.

### Reza Sadr

#### *Journal Publications*

**R. Sadr, C. Hohenegger, H. Li, P.J. Mucha, and M. Yoda.** “Diffusion-Induced Bias in Near-Wall Velocimetry.” *Journal of Fluid Mechanics* 577 (2007): 443–456.

## PETROLEUM ENGINEERING

### Mahmood Amani

#### *Refereed Conference Publications*

**Haghshenas, A. and M. Amani.** “Feasibility Study of Steam Injection in one of Iranian Naturally Fractured Heavy Oil Fields.”

Paper presented at the SPE Romanian Section Conference, “150 Years of Petroleum Industry: Tradition & Challenges.” Bucharest, Romania, 14–17 Oct. 2007.

### Paknejad, A., J. Schubert, C. Teodoriu, and

**M. Amani.** “Sensitivity Analysis of Key Parameters in Foam Drilling Operations.” Paper presented at the SPE Romanian Section Conference, “150 Years of Petroleum Industry: Tradition & Challenges.” Bucharest, Romania, 14–17 Oct. 2007.

### Mashad Fahes

#### *Refereed Conference Publications*

**Fahes, M. and A. Firoozabadi.** “Wettability Alteration to Intermediate Gas-Wetting in Gas-Condensate Reservoirs at High Temperatures.” *SPE Journal* 12, No. 4 (2007).

**Platt, F. and M. Fahes.** “The Design, Construction, Implementation, and Integration of a New Petroleum Engineering Campus in the Middle East.” Paper presented at SPE 109778 proceedings of the SPE Annual Technical Conference and Exhibition, Anaheim, California, United States, 11–14 Nov. 2007.

### Raffie Hosein

#### *Refereed Conference Publications*

**Hosein, R. and D.W. McCain.** “Extended Analysis for Gas Condensate Systems.” Paper presented at the SPE Annual Technical Conference and Exhibition, Anaheim, California, United States, 11–14 Nov. 2007.

**Hosein, R., D.W. McCain, and T. Jagai.** “How to Extend the Heptanes Plus Fraction for Gas Condensate Systems for Use in Compositional Simulation.” Paper presented at the SPE Europepec/EAGE Annual Conference and Exhibition, Rome, Italy, 9–12 June 2008.

### Hadi Nasrabadi

#### *Journals*

**Nasrabadi, H., H. Hoteit and A. Firoozabadi,** “An Analysis of Species Separation in Thermogravitational Column Filled with a Porous Medium.” *Transport in Porous Media* 67, No. 3: (2007): 473–486.

#### *Refereed Conference Publications*

**Nasrabadi, H., A. Firoozabadi, R. Esposito, and A. Jaime.** “Interpretation of an Unusual Bubblepoint Pressure Variation in a Brazilian Field.” Paper presented at

the SPE Europepec/EAGE Annual Conference and Exhibition, Rome, Italy, 9–12 June 2008.

### Frank Platt

#### *Refereed Conference Publications*

**Platt, F. and M. Fahes.** “The Design, Construction, Implementation, and Integration of a New Petroleum Engineering Campus in the Middle East.” Paper presented at SPE 109778 proceedings of the SPE Annual Technical Conference and Exhibition, Anaheim, California, United States, 11–14 Nov. 2007.

### Shedid Shedid

#### *Journal Publications*

**Ghareeb, M., S.A. Shedid, and M. Ibrahim.** “Beam Pump System for Deep and High Volume Wells.” *Egypt Journal for Oil & Gas*, No. 2 (2007): 16–17.

**Shedid, S.A.** “A Novel Technique for Determining Microscopic Pore Size Distribution of Heterogeneous Reservoir Rocks.” *Journal of Petroleum Science and Technology* 24 (2007): 1457–1467.

**Zekri, A.Y., S.A. Shedid, and H. Alkashef.** “A New Technique for Treatment of Permeability Damage due to Asphaltene Deposition Using Laser Technology.” *Journal of Petroleum Science and Engineering* 21, nos. 9 & 10 (2007): 49–59.

#### *Refereed Conference Publications*

**Ghareeb, M., S.A. Shedid, and M. Ibrahim.** “Simulation Investigations for Enhanced Performance of Beam Pumping System for Deep High Volume Wells.” Paper presented at SPE 108284 proceedings of the 2007 International Oil Conference and Exhibition in Mexico, Veracruz, Mexico, 27–30 June 2007.

**Ghareeb, M., and S.A. Shedid.** “A New Correlation for Calculating Wellhead Production Considering Influences of Temperature, GOR, and Water-Cut for Artificially Lifted Wells,” International Petroleum Technology Conference (IPTC), Dubai, U.A.E., 4–6 December 2007.

**Shedid, S.A., A. Y. Zekri and R. A. Almeheid-eb.** “Optimization of Carbon Dioxide Flooding for Heterogeneous Carbonate Oil Reservoir,” Canadian Petroleum International Conference, Calgary, Canada, 16–18 June 2008.

**Hassan Bashir***Refereed Conference Publications*

**Bashir, H.** "Comparative Political Theory and Conceptual History." Paper presented at Center of Excellence for Political Thought and Conceptual Change, University of Jyväskylä, Jyväskylä, Finland, 16 May 2008.

**Bashir, H.** "Comparative Political Theory: Scope, Progress and Promise." Paper Presented at Political Studies Association, Annual Meeting, University of Swansea, Wales, United Kingdom, 2008.

**Bashir, H.** "Delusions of Celestial Perfection: Christian Missionaries in Early Modern China." Paper presented at Canadian Political Science Association Annual Conference and 80th Annual General Meeting, University of British Columbia, Vancouver, Canada, 4–6 June 2008.

**Bashir, H.** "Towards a Global Political Theory: Scope, Progress and Promise." Paper presented at British International Studies Association conference on "Thinking (With)Out Borders: International Political Theory in the 21st Century," University of St. Andrews, Scotland, United Kingdom, 12–13 June 2008.

**Bashir, H.** "A True Babylon of Confusion: Jesuit Missionaries in late Ming China." Paper presented at Religion, Culture and Conflict Research Group Conference on Politics and the Religious Imagination, Trinity Western University, Langley, British Columbia, Canada, 12–15 March 2008.

**Bashir, H., and F.M. Sheikh.** "Western Political Theory and Non Western Theorists: The Elusive Nature of Islamic Fundamentalist Thought." Paper presented at Midwest Political Science Association 2007 Annual Meeting, Chicago, Illinois, 2007.

**Bashir, H., and F.M. Sheikh.** "Western Political Theory and Non Western Theorists: The Elusive Nature of Islamic Fundamentalist Thought." Paper presented at Southwestern Political Science Association Annual Meeting, Albuquerque, New Mexico, United States, 2007.

**Zohreh Eslami***Journal Publications*

**Eslami-Rasekh, Z., and A. Noora.** "Perceived Pragmatic Transferability of L1 Request Strategies by Persian Learners

of English." In *Developing Contrastive Pragmatics: Interlanguage and Cross-Cultural Perspectives*, edited by M. Pütz and J. Neff-van Aertselaer, 297–328. Berlin/New York: Mouton de Gruyter, 2007.

**Eslami, Z.R., A. Eslami-Rasekh and B. Quiroz.** "Needs Analysis of Iranian EAP Students." *ESP Across Cultures*, 4 (2007): 21–37.

**Eslami, Z.R., and A. Eslami-Rasekh.** "An Empirical Study of NNESTs' Pragmatic Competence Enhancement in an EFL Setting. In *Investigating Pragmatics in Foreign Language Learning, Teaching and Testing*, edited by Eva Alcón Soler and Alicia Martínez-Flor. Multilingual Matters, 2008.

**Eslami, Z.R., and A. Eslami-Rasekh.** "Discourse Markers and Academic Listening Comprehension." *Asian EFL Journal* 9, No. 1 (2007), [http://www.asian-efl-journal.com/March\\_07\\_zeandar.php](http://www.asian-efl-journal.com/March_07_zeandar.php).

**Eslami, Z.R., and A. Eslami-Rasekh.** "Use of Address Forms by Iranian Moslem Women and the Effect of Religion." *Encyclopedia of Women and Islamic Cultures* 5 (2007): 234–235.

*Refereed Conference Publications*

**Chen, W.C., and Z.R. Eslami.** "Empirical Analysis of Net Conferencing in a Linguistically Diverse Context—A Case Study in a U.S-Based Graduate Level Course." Paper presented at South Central Association for Language Learning Technology 2006 Conference, Plano, Texas, United States, 2007.

**Eslami, Z.R., and A. Eslami-Rasekh.** "Apologizing in Persian." Paper presented at Second International Conference on Iranian Linguistics, University of Hamburg, Hamburg, Germany, Aug. 2007.

**Eslami, Z.R., and A. Eslami-Rasekh.** "Email Discourse of Native English Speaking and Iranian Nonnative English Speaking Graduate TESOL Students: Openings and Closings." Paper presented at Issues in English Language Teaching in Iran, Tehran, Iran, July 2007.

**Ernest Obadele-Starks***Books*

Starks, E.O. *Freebooters and Smugglers: The Foreign Slave Trade in the United States after 1808*. Arkansas: University of Arkansas Press, 2007.

**Hassan Bazzi***Journal Publications*

**Bazzi, H.S., D.E. Bergbreiter, C. Hongfa, and J. Tian.** "Heptane-Soluble Ring-Closing Metathesis Catalysts." *Org. Letters* 9, No. 17 (2007): 3259–3261.

**Bazzi, H.S., A. Mostafa, S.Y. AlQaradawi, and E.-M. Nour.** "Synthesis and Spectroscopic Structural Investigations of the Charge-Transfer Complexes formed in the Reaction of 2,6-Diaminopyridine with  $\pi$ -acceptors TCNE, Chloranil, and DDQ." *Journal of Molecular Structure*, 842, Nos. 1–3 (2007): 1–5.

**Sleiman, H. F., H.S. Bazzi, Y. Ishihara, V. Toader, and F. Godin.** "Molecule-Responsive Block Copolymer Micelles." *Chemistry A European Journal* 13, No. 16 (2007): 4560–4570.

**Chance, B.S., A. Mostafa, and H.S. Bazzi.** "Novel Charge-Transfer Polymers via ROMP." *Polymer Preprints* 49, No. 1 (2008): 537–538.

*Refereed Conference Publications*

**Chance, B.S., A. Mostafa, and H. S. Bazzi.** "Novel Charge-Transfer Polymers via ROMP." Abstracts of Papers, presented at 235th ACS National Meeting, New Orleans, Louisiana, United States, 6–10 April 2008.

**Hongfa, C., H.S. Bazzi, and D.E. Bergbreiter.** "Polyisobutylene Supported Ligands for Homogeneous Cr(III) and Ru(II) Catalysts." Abstracts of Papers, presented at 235th ACS National Meeting, New Orleans, Louisiana, United States, 6–10 April 2008.

**Hongfa, C., H.S. Bazzi, and D.E. Bergbreiter.** "Polyisobutylene Supported NHC Carbene." Abstracts of Papers, presented at 235th ACS National Meeting, New Orleans, Louisiana, United States, 6–10 April 2008.

**Milivoj R. Belić***Journal Publications*

**Belić, M.R., M.S. Petrović, D.M. Jović, A.I. Strinić, D.D. Arsenović, S. Prvanović, R.D. Jovanović, and N.Z. Petrović.** "Dancing Light: Counterpropagating Beams in Photorefractive Crystals." *Acta Physica Polonica A* 212 (2007): 729–736.

**Jović, D., R. Jovanović, S. Prvanović, M. Petrović, and M. Belić.** "Counterpropagating Beams in Rotationally Symmetric Photonic Lattices." *Opt. Materials* 30

(2008): 1213–1216.

**Jović, D., M. Petrović, and M. Belić.** “Counterpropagating Pattern Dynamics: From Narrow to Broad Beams.” *Opt. Commun.* 281 (2008): 2291–2300.

**Pauly, F., O. Sandfuchs, F. Kaiser, and M. Belić.** “Modulation-depth effects in photorefractive two wave mixing.” *Asian Journal of Physics* 16 (2007): 33–47.

**Petroški, M., M. Petrović, and M. Belić.** “Vortices and Soliton Clusters in Saturable Kerr Media with Square-Root Nonlinearity.” *Optics Commun.* 279 (2007): 196–202.

**Petrović, M.S., D.M. Jović, M.R. Belić, and S. Prvanović.** “Angular Momentum Transfer in Optically Induced Photonic Lattices.” *Physical Review A* 76 (2007): 023820.

**Strinić, A.I., and M.R. Belić.** “Beam Propagation in Nematic Liquid Crystals.” *Acta Physica Polonica A* 212 (2007): 877–884

**Strinić, A.I., D.M. Jović, and M.R. Belić.** “Counterpropagating Dipole Beams in Nematic Liquid Crystals.” *Acta Physica Polonica A* 212 (2007): 885–890.

**Strinić, A.I., D.M. Jović, M. Petrović, D.V. Timotijević, N.B. Aleksić, M.R. Belić.** “Spatiotemporal Instabilities of Counterpropagating Beams in Nematic Liquid Crystals.” *Opt. Materials* 30 (2008): 1173–1176.

**Zhong, W.P., M. Belić, R.H. Xie, and G. Chen.** “Two-Dimensional Whittaker Solitons in Nonlocal Nonlinear Media.” *Physical Review A* 78 (2008): 013826.

**Zhong, W.P., L. Yi, R.H. Xie, M. Belić, and G. Chen.** “Robust Three-Dimensional Spatial Soliton Clusters in Strongly Nonlocal Media.” *Journal of Physics B* 41 (2008): 025402.

## Tingwen Huang

### Journal Publications

**Du, J., and T. Huang.** “Complex Dynamics in an Output Evolution Model with Adaptive Production Adjustment.” *Dynamics of Continuous, Discrete and Impulsive Systems A* 14, S2 (2007): 302–304.

**Du, J., and T. Huang.** “New Results on Stable Region of Nash Equilibrium of Output Game Model, Applied Mathematics and Computation.” *Applied Mathematics and Computation* 192 (2007): 12–19.

**Huang, T.** “Exponential Stability of Delayed Fuzzy Cellular Neural Networks with Diffusion.” *Chaos, Solitons & Fractals* 31 (2007): 658–664.

**Huang, T., A. Chan, Y. Huang, and J. Cao.**

“Stability of Cohen-Grossberg Neural Networks with Time-varying Delays.” *Neural Networks* 20 (2007): 868–873.

**Huang, T., and C. Li.** “Synchronization of Impulsive Fuzzy Cellular Neural Networks with Parameter Mismatches.” *Lecture Notes in Computer Science* 4492 (2007): 24–32.

**Huang, T., C. Li, and G. Chen.** “Stability of Cohen-Grossberg Neural Networks with Unbounded Distributed Delays.” *Chaos, Solitons and Fractals* 34 (2007): 992–996.

**Huang, T., C. Li, and X. Liao.** “Synchronization of A Class of Coupled Chaotic Delayed Systems with Parameter Mismatch.” *Chaos* 17 (2007): 33–121.

**Huang, T., and X. Wang.** “An Estimation of the Domain of Attraction of Equilibrium Points in Fuzzy Neural Networks.” *Dynamics of Continuous, Discrete and Impulsive Systems A* 14, S2 (2007): 59–62.

**Li, C., J. Chen, and T. Huang.** “A New Criterion for Global Robust Stability of Interval Neural Networks with Discrete Time Delays.” *Chaos, Solitons & Fractals* 31 (2007): 561–570.

**Li, C., X. Liao, X. Yang, and T. Huang.** “Exponential Stabilization of Chaotic Systems with Delay by Intermittent Control.” *Chaos* 17 (2007): 13–102.

**Li, C., X. Liao, X. Yang, and T. Huang.** “Global Stability Analysis for Delayed Neural Networks via Interval Matrix Approach.” *IET (Former IEE) Proc. Control Theory & Applications* 1 (2007): 743–748.

**Li, Y., X. Liao, C. Li, T. Huang, and D. Yang.** “Impulsive Synchronization and Parameter Mismatch of the Three-Variable Autocatalator Model.” *Physics Letters A* 366 (2007): 52–60.

## Hassan Moghbelli

### Journal Publications

**Halvaei Niasar, A., H. Moghbelli, and A. Vahedi.** “High Performance Torque Control of Brushless DC Motor Drive Based on TMS320LF2407 DSP Controller.” *International Review of Electrical Engineering (IREE) Journal* 2, No. 3 (2007): 438–447.

### Refereed Conference Publications

**Halvaei Niasar, A., H. Moghbelli, and A. Vahedi.** “A Low-Cost Sensorless Control for Reduced-Parts, Brushless DC Motor Drives.” Paper presented during proceedings of the IEEE International Symposium on Industrial Electronics (ISIE 2008), Cambridge, United Kingdom, 30 June–2 July, 2008.

**Halvaei Niasar, A., H. Moghbelli, and A. Vahedi.** “A Novel Sensorless Control

Method for Four-Switch, Brushless DC Motor Drive without Using any 30 degree Phase Shifter.” Paper presented during proceedings of the 2007 IEEE International Conference on Electrical Machines and Systems, ICEMS2007, Olympic Parktel, Seoul, Korea, 8–11 October 2007.

**Halvaei Niasar, A., H. Moghbelli, and A. Vahedi.** “Implementation of Four-Switch Brushless DC Motor Drive Based on TMS320LF2407 DSP.” Paper presented during proceedings of the 2007 IEEE International Conference on Signal Processing and Communications (ICSPC 2007), Park Hyatt Hotel, Dubai, United Arab Emirates, 24–27 November 2007.

**Halvaei Niasar, A., H. Moghbelli, and A. Vahedi.** “Torque Control of Brushless DC Motor Drive Based on DSP Technology.” Paper presented during proceedings of the 2007 IEEE International Conference on Electrical Machines and Systems, ICEMS2007, Olympic Parktel, Seoul, Korea, 8–11 October 2007.

**Moghbelli, H., A. Halvaei Niasar, and A. Vahedi.** “Modeling and Simulation of Four-Switch, Brushless DC Motor Drive Based on Switching Function Concept in MATLAB/Simulink.” Paper presented during proceedings of the Conference on Applied Mathematics and Computational Science, Doha, Qatar, 30 March–1 April, 2008.

## Hyunchul Nha

### Journal Publications

**Jeong, H., J. Lee, and H. Nha.** “Decoherence of Highly Mixed Macroscopic Superpositions.” *J. Opt. Soc. Am. B* 25 (2008): 1025.

**Nha, H.** “Complete conditions for legitimate Wigner distributions.” *Physical Review A* 78 (2008): 012103.

**Nha, H.** “Linear optical scheme to demonstrate genuine multipartite entanglement for single-particle W states.” *Physical Review A* 77 (2008): 062328.

**Nha, H.** “Unitary Equivalence between Ordinary Intelligent States and Generalized Intelligent States.” *Physical Review A* 76 (2007): 053834.

## Devanayagam Palaniappan

### Journal Publications

**Palaniappan, D.** “Image Treatment of a 2D Vapor-Liquid Compound Droplet In a Linearised Steady Viscous Flow. *Trans.*” *ASME* (2007).

- Palaniappan, D.** "London Model for the Levitation Force between a Horizontally Oriented Point Magnetic Dipole and Superconducting Sphere." *Physical Review B* 74 (2007): article No. 016502.
- Pesch, W., D. Palaniappan, J. Tao, and F. H. Busse.** "Convection in a Fluid Layer Heated from Below or Above and Subjected to Time Periodic Horizontal Accelerations." *Journal of Fluid Mechanics* (2007).

## Marvin Rowe

### Book Chapters

- Robinson, E., M. Garnica, R. A. Armitage, and M. W. Rowe.** "Los Fechamientos del Arte Rupestre y La Arqueología en la Casa de las Golondrinas, San Miguel Dueñas, Sacatepéquez," in *XX Simposio de Investigaciones Arqueológicas en Guatemala*, edited by J. P. Laporte, B. Arroyo, and H. Mejía, 959–972. Guatemala: Ministerio de Cultura y Deportes, 2008.
- Rowe, M.W.** "Reflections on Dating of Rock Art," in *Exploring the Mind of Ancient Man*, edited by P. C. Reddy, 218–231. New Delhi, India: Research India Press, 2007.

### Journal Publications

- Rowe, M.W.** "River of a Thousand Lingas." *American Indian Rock Art* 34 (2008): 181–189.

## Suhail Zubairy

### Journal Publications

- Chang, J.-T., and M.S. Zubairy.** "Three-Qubit Phase Gate Based on Cavity QED." *Physics Review A* 75 (2008): 012329.
- Evers, J., S. Qamar, and M.S. Zubairy.** "Atom Localization and Wave Function Determination via Multiple Simultaneous Quadrature Measurements." *Physics Review A* 75 (2007): 053809.
- Ghafoor, F., S. Qamar, S.-Y. Zhu, and M.S. Zubairy.** "Autler-Townes Triplet Spectroscopy." *Optics Commun.* 273 (2007): 464.
- Greenberger, D., N. Erez, M.O. Scully, A. Svidinsky, and M.S. Zubairy.** "The Rich Interface between Optical and Quantum Statistical Physics: Planck, Photon Statistics, and Bose-Einstein Condensation." *Progress in Optics* 50 (2007).
- Ikram, M., F.-L. Li, and M.S. Zubairy.** "Disentanglement in a Two-Qubit System Subject to Dissipation Environments." *Physics Review A* 75 (2007): 062336.

- Ikram, M., F.-X. Li, and M.S. Zubairy.** "Entanglement Generation in a Two-Mode Quantum Beat Laser." *Physics Review A* 76 (2007): 042317.
- Kiffner, M., J. Evers, and M.S. Zubairy.** "Resonant Interferometric Lithography beyond the Diffraction Limit." *Physics Review Letters* 100 (2008): 073602.
- Kiffner, M., M.S. Zubairy, J. Evers, and C.H. Keitel.** "Two-Mode Single-Atom Laser as a Source of Entangled Light." *Physics Review A* 75 (2007): 033816.
- Kim, H.-J., A.H. Khosa, H.W. Lee, and M.S. Zubairy.** "One-Atom Correlated Emission Laser." *Physics Review A* 77 (2008): 023817.
- Lee, S.M., S.-W. Ji, H.-W. Lee, and M.S. Zubairy.** "Proposal of Direct Measurement of Concurrence via Visibility in a Cavity QED System." *Physics Review A* 77 (2008): 040301.
- Lee, S.Y., S. Qamar, H.-W. Lee, and M.S. Zubairy.** "Entanglement in a Parametric Converter." *Journal Physics B: At. Mol. Opt. Phys.* 41: (2008): 145504.
- Li, H., V.A. Sautenkov, M.M. Kash, A.V. Sokolov, G.R. Welch, Y.V. Rostovtsev, M.S. Zubairy, and M.O. Scully. "Optical Imaging beyond the Diffraction Limit via Dark States." *Physics Review A* 78, 013803 (2008).
- Macovei, M., J. Evers, C.H. Keitel, and M.S. Zubairy.** "Localization of Atomic Ensembles via Superfluorescence." *Physics Review A* 75: 033801.
- Ooi, C.H.R., and M.S. Zubairy.** "The Role of Quantum Noise on Nonclassical Two-Photon Correlation in an Extended Medium." *Physics Review A* 75 (2007): 053822.
- Ooi, C.H.R., Q. Sun, M.S. Zubairy, and M.O. Scully.** "Correlation of Photon Pairs from the Double Raman Amplifier: Generalized Analytical Quantum Langevin Theory." *Physics Review A* 75: 013820.
- Qamar, S., F. Ghafoor, M. Hillery, and M.S. Zubairy.** "Quantum Beat Laser as a Source of Entangled Radiation." *Physics Review A* 77 (2008): 062308.
- Qamar, S., H. Xiong, and M.S. Zubairy.** "Influence of pump phase fluctuations on entanglement generation using correlated emission laser." *Physics Review A* 75 (2007): 062305.
- Sun, Q., M. Al-Amri, A. Kamli, and M.S. Zubairy.** "Lamb Shift Due to Surface Plasmon Polaritons Modes." *Physics Review A* 77 (2008): 062501.
- Sun, Q., P.R. Hemmer, and M.S. Zubairy.** "Quantum Lithography with Classical

Light: Generation of Arbitrary Patterns." *Physics Review A* 75 (2007): 065803.

- Sun, Q., S. Shahriar, and M.S. Zubairy.** "Electromagnetically Induced Transparency inside the Laser Cavity: Switch between First-Order and Second-Order Phase Transitions." *Physics Review A* 78 (2008): 013805.
- Wang, L.-G., M. Ikram, and M.S. Zubairy.** "Control of Goos-Hänchen Shift of a Light Beam via a Coherent Driving Field." *Physics Review A* 77 (2008): 023811.
- Wang, L.-G., S. Qamar, S.-Y. Zhu, and M.S. Zubairy.** "Manipulation of the Raman Process via Incoherent Pump, Tunable Intensity, and Phase Control." *Physics Review A* 77: (2008): 033833.
- Wang, L.-G., L.-G. Wang, S.-Y. Zhu, and M.S. Zubairy.** "Influence of Spatial Coherence on Goos-Hänchen Shift at Total Internal Reflection." *Journal Physics B: At. Mol. Opt. Phys.* 41: (2008): 055401.
- Zhang, Z.-M., A.H. Khosa, M. Ikram, and M.S. Zubairy.** "Generating Entangled States of Continuous Variables via Cross-Kerr Nonlinearity." *J. Phys. B: At. Mol. Opt. Phys.* 40, (2007): 1917.
- Zubairy, M.S.** "Factoring Numbers—Quantum Optically." *Science* 316 (2007): 554.

## LIBRARY

### Suzanne D. Gyeszly

#### Journal Publications

- Gyeszly, S.D.** "Advanced Collection Development Project in Partnership with a Vendor." *Collection Building* 27, No. 2 (2008): 56–62.

#### Refereed Conference Publications

- Gyeszly, S.D.** "Advanced Collection Development Project at Texas A&M University at Qatar Library (TAMUQL) with the Partnership of YBP Library Services." Paper presented at Juried Poster Session, American Library Association, Washington D.C., United States, July 2007.
- Gyeszly, S.D.** "Developing www.national-libraries.org Web site and Directory of the National Libraries of the World." Paper presented at the International Federation of Library Associations, Durban, Aug. 2007.

# Appendix B

## Research funding and grants for the 2007–2008 academic year

### ENGINEERING

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**Masad, E.A. (TAMUQ), D. Little (TAMU),** “Innovative Design of Road Materials Using Physio-Chemical Properties, Imaging Techniques and Constitutive Modeling.” Awarded \$384,514 by NPRP, Qatar National Research Fund.

### CHEMICAL ENGINEERING

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**Abdel-Wahab, A., P. Linke, B. Batchelor (TAMU), M. El-Halwagi (TAMU), and H. Alfadala (QU).** “A Holistic Approach to the Sustainable Use of Seawater for Process Cooling.” Awarded \$595,499 by NPRP, Qatar National Research Fund.

**Abdel-Wahab, A., B. Batchelor (TAMU), and M. El-Halwagi (TAMU).** “Using Ultra-High Lime with Aluminum Process for Industrial Wastewater Treatment.” Awarded \$50,000 by Suncor Energy Inc., Calgary, Canada.

**Abdel-Wahab, A.** “Silica and Sulfate Removals in Inland Desalination Using Reverse Osmosis with Brine Conversion and Zero Liquid Discharge.” Awarded \$10,000 by UREP, Qatar National Research Fund.

**Abdel-Wahab, A.** “Utilization of Byproduct Sulfur for Treatment of Hazardous Wastes (Phase I).” Awarded \$10,000 by UREP, Qatar National Research Fund.

**Bukur, D.** “Activation Studies with Cobalt Catalysts for Gas-to-Liquid Conversion.” Awarded \$745,153 by NPRP, Qatar National Research Fund.

**Collins, D. (TAMU), S. Brooks (TAMU), and A. Abdel-Wahab (TAMUQ).** “Airborne Measurement of Cloud Condensation Nuclei and Ice Nuclei over Saudi Arabia”. Awarded \$570,074 by National Center for Atmospheric Research, USA.

**Linke, P. and A. Abdel-Wahab.** “A Comparative Assessment of Simulation Tools for Environmental Impact Assessment of Biocide Emissions from Cooling Water Discharge.” Awarded \$20,000 by NPRP, Qatar National Research Fund.

**Nounou, M.N. and H.N. Nounou.** “Improved Nonlinear Modeling using Multiscale Estimation.” Awarded \$341,237 by NPRP, Qatar National Research Fund.

### ELECTRICAL & COMPUTER ENGINEERING

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**Ahmed, S.** “General Research in the Field of Electric Machines and Power Electronics.” Grant from Schlumberger Technology Corporation, January 2008.

**Ahmed, S. (TAMUQ) and M. AlTakriti (iHorizons LLC, Doha, Qatar).** “Development of a Web Based Power Quality Monitoring and Analysis System.” Awarded \$20,433 by Qatar National Research Fund (UREP).

**Ahmed, S. (TAMUQ) and P. Enjeti (TAMUQ).** “Natural Gas Fed Fuel Cell Power Generation and Economic Development.” Awarded \$500,828 by NPRP, Qatar National Research Fund.

**Alnuweiri, H. (TAMUQ) and N. Reddy (TAMU).** “Design and Analysis of New Generation Protocols for Triple-Play Networks.” Awarded \$436,433 by NPRP, Qatar National Research Fund.

**Alouini, M.S. (TAMUQ), M. Hasna (Qatar University), Y.-C. Ko (Korea University), and H.-C. Yang (University of Victoria, Canada).** “Collaborative Strategies for the 60 GHz Wireless Personal Area Networks.” Awarded \$410,353 by NPRP, Qatar National Research Fund.

**Enjeti, P.** “Analysis and Design of MEMS Based Circuit breaker.” Awarded \$61,790 by GE Global Research.

**Enjeti, P.** “Analysis of Building Elevator Systems Powered by Emergency Diesel Generators.” Awarded \$30,000 by Otis Elevator Company.

**Miller, S. (TAMU), K. Qaraqe (TAMUQ), and M.S. Alouini (TAMUQ).** “Advanced Techniques for Wireless Downhole Communication Systems.” Awarded \$370,000 RasGas Research Grant. Research with Tubel Technolo-

gies, Houston, Texas, United States.

**Narayan, K. (TAMU), H. Pfister (TAMU), M.S. Alouini (TAMUQ), and K. Qaraqe (TAMUQ).** “Universal Signaling Schemes for Multimedia Transmission over Wireless Networks.” Awarded \$575,000 by NPRP, Qatar National Research Fund.

**Nounou, H. (TAMUQ- Electrical Engineering) and M. Nounou (TAMUQ- Chemical Engineering).** “Improved Nonlinear Modeling using Multiscale Estimation.” Awarded \$341,237 by NPRP, Qatar National Research Fund.

**Qaraqe, K. (TAMUQ), and M.S. Alouini (TAMUQ).** “TAMUQ Wireless Communication Lab.” Awarded \$350,000 for Qtel equipment proposal.

**Qaraqe, K. (TAMUQ), M.S. Alouini (TAMUQ), M. Hasna (Qatar University), S. Miller (TAMU), C. Georghiadis (TAMU), and L. Reinke (CNA-Q).** “3G UMTS Communication Systems. Awarded \$648,000 Qtel research grant.

**Xiong, Z. (TAMU), E.Serpedin (TAMUQ), and K. Qaraqe (TAMUQ).** “Scalable Wireless Multimedia in Qatar (and the Rest of the World).” Awarded \$615,000 by NPRP, Qatar National Research Fund.

### MECHANICAL ENGINEERING

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**Caton, J.A. (TAMU), R. Langari (TAMU), T. Jacobs (TAMU), and R. Tafreshi (TAMUQ).** “Development of Low Emissions – High Efficiency Natural Gas Engine: Implementation of Homogenous Charge Compression Ignition (HCCI) Technologies.” Awarded \$747,824 by NPRP, Qatar National Research Fund.

**Davis, M.** “Development and Verification of a VAV Air Distribution System Model Using Fan-Powered Terminal Units for Large Commercial Facilities.” Awarded \$452,521 by NPRP, Qatar National Research Fund.

## PETROLEUM ENGINEERING

**Nasrabadi, H. (TAMUQ), M. Fahes (TAMUQ), and A. Firoozabadi (RERI and Yale University)** “Study of CO<sub>2</sub> injection in oil reservoirs and saline aquifers in Qatar for dual purpose of carbon sequestration and improved oil recovery.” Awarded \$413,448 by NPRP, the Qatar National Research Fund.

**Zhu, D. (TAMU), A. Datta-Gupta (TAMU), H. Nasrabadi (TAMUQ).** “Using Horizontal and Multilateral Well with Intelligent Completion to Develop Gas Fields in Qatar.” Awarded \$741,371 by NPRP, Qatar National Research Fund, 2007.

## SCIENCE

**Bazzi, H.S. (TAMUQ), and D. Bergbreiter (TAMU).** “Synthesis, Characterization and Applications of Novel Lipophilic Metathesis Catalysts.” Awarded \$744,980 by NPRP, Qatar National Research Fund.

**Bazzi, H.S. (TAMUQ), and H.S. Sleimann (McGill).** “Novel Biodetection Methods.” Awarded \$638,848 by NPRP, Qatar National Research Fund.

**Bengali, A.** “The Influence Of Electronic And Steric Effects On The Reactivity Of The Metal-( $\eta^5$ -Aromatic) Bond: A Laser Flash Photolysis Study With Infrared Detection.” Awarded \$605,895 by NPRP, Qatar National Research Fund.

**Nha, H. (TAMUQ) and S. Zubairy (TAMUQ).** “Quantum Entanglement for

Secure Communication.” Awarded \$664,636 by NPRP, Qatar National Research Fund.

**Pilant, M. (TAMU), R. Ewing (TAMU), Y. Efiendiev (TAMU), and A. Abdel-Wahab (TAMUQ).** “Development of a Computational Groundwater Model for Qatar.” Awarded \$722,042 by NPRP, Qatar National Research Fund, 2007.

**Belić, M.** “Nonlinear Photonics for All-optical Telecommunication and Information Technologies.” Awarded \$748,558 by NPRP, Qatar National Research Fund.

**Schuessler, H.A. (TAMU), and M. Belić (TAMUQ).** “Utilizing Laser Spectroscopy of Noble Gas Tracers for Mapping Oil and Gas Deposits.” Awarded \$749,948 by NPRP, the Qatar National Research Fund.

# Appendix C

## External collaborations

### IN QATAR

BP  
iHorizons  
Ministry of Municipal Affairs and Agriculture  
Omar bin Al-Khattab Independent School  
Qatar Fertiliser Company  
Qatar Petroleum  
Qatar Science & Technology Park  
Qatar University  
Qtel  
RasGas  
Shell  
Supreme Education Council Math Standards Committee

### WORLDWIDE

Delft University of Technology (Netherlands)  
Engineering Reservoir Research Institute  
IFP (France)  
King’s College (UK)  
Korea Institute for Advanced Study  
Lawrence Livermore National Laboratory

### WORLDWIDE (continued)

Los Alamos National Laboratory  
McGill University (Canada)  
National Geographic Society  
National Instruments  
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