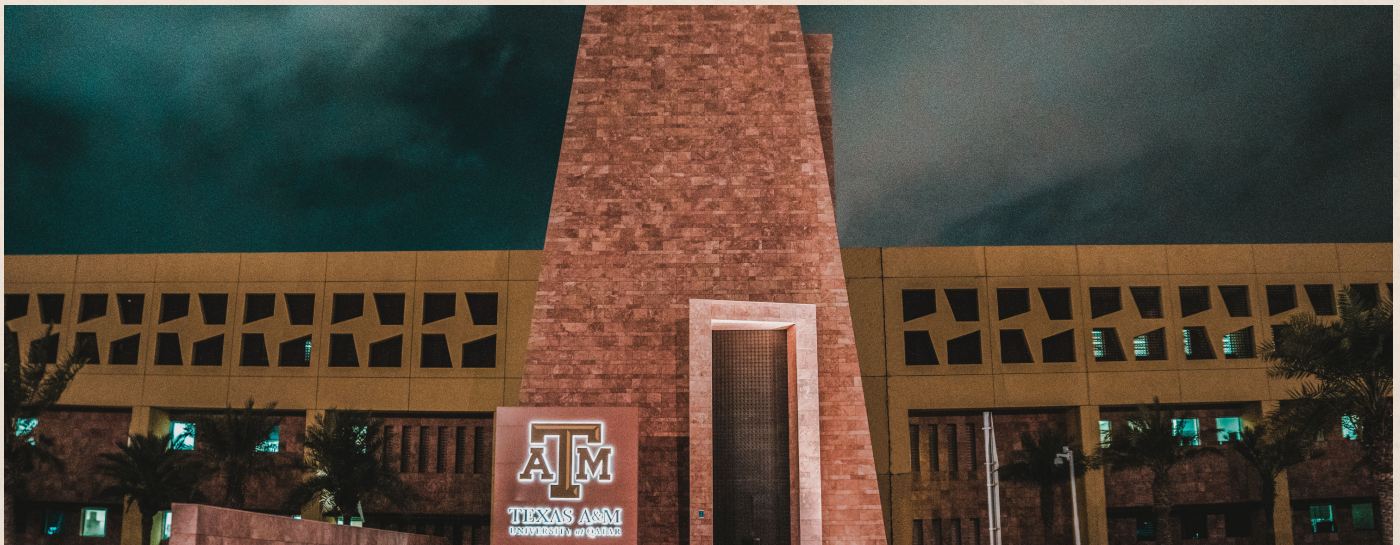


GRAD CABLE

The official newsletter of the Texas A&M University at Qatar
Graduate Student Association



UPCOMING EVENTS/NEWS

FEB. 8

NATIONAL SPORTS DAY
(OFFICES CLOSED / NO
CLASSES)

FEB. 10

LAST DAY TO APPLY FOR
MAY GRADUATION, 4:30 P.M

FEB. 27 - MAR. 3

SPRING BREAK
(NO CLASSES HELD)

MAR. 6

SPRING SEMESTER CLASSES
RESUME

Dinosaurs

by Zurwa Khan

It was early morning with the usual work-from-home situation amid one of the Corona Virus outbreaks. My day usually starts by checking emails while having egg mayonnaise sandwiches and tea with my four-year-old daughter. She gave me that long stare, which meant she wanted to ask a question. While keeping my eyes glued to my laptop screen, I started,

“P.F.Y.T?” that’s ‘penny for your thought.’

Without a moment’s hesitation, she asked, “Mom, are dinosaurs real?”

“Yes, but they have all passed away a very long time ago.”

“Why?”

“Umm... ice age,”

“How?”

I looked up. While the history of dinosaurs was always an exciting topic, I never really thought I needed to know precisely how dinosaurs became extinct.

“Let’s google it,” this has been my standard answer to a lot of her recent questions. So off we started; I skimmed an article about a meteor hitting the earth, which led to a chain of events, including the extinction of dinosaurs. So, I summarized it, “Well, I was not entirely right before, dinosaurs became extinct because a huge rock hit the earth, and then there was this explosion and a lot of dust, then it became cold, and then they all died.”

“Was the rock huge?”

“Yes, super huge.”

“Was the rock bigger than the earth?”

“No, I don’t think so.”

“Hmm,” and she reluctantly went back to eating her sandwich. I know I did not entirely convince her. But to be honest, I did not convince myself either. How big does the rock have to be to cause all the dinosaurs to die simultaneously? While directing my focus again towards my emails, I made a mental note to take my daughter to Dahl al Hamam park, where I remember misinterpreting a cave for the aftermath of a fallen meteor as a child and make up for our short conversation.

Months later, the Professor in my Gas Dynamics class did some sample calculations on shock waves. The increase in pressure and temperature due to a shock wave are so high I could hardly believe my eyes and ears. In the Professor’s sample problem, temperature and pressure almost reached 4500 K and 80 bar! To put it into perspective, the sun’s temperature is around 6000 K, and 80 bar is the pressure at nearly 800m underwater! After going over my lecture notes, there were two afterthoughts: the immediate thought was pity and heartfelt prayers for the people who have experienced deathly shock waves, and the afterthought was dinosaurs. The aftershock due to the meteor would have caused such high temperatures and pressures that life on earth would have been annihilated almost instantaneously. I took this information to my daughter, who listened with great interest, and I could feel that it made sense to her as her eyes became wide, and she said, “I understand it now.”

PHOTO BY HAZIM MOHAMED

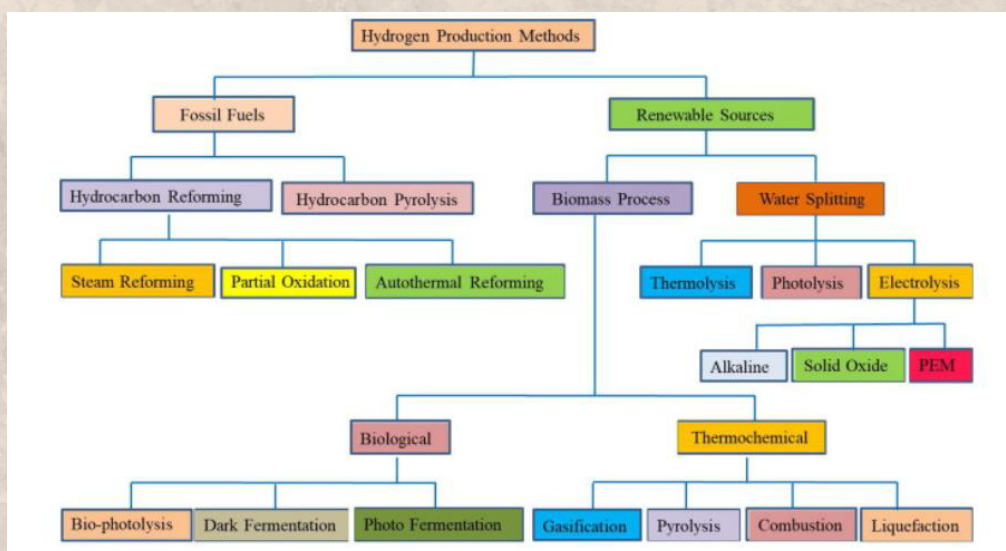


So, what is the takeaway here? That graduate-level courses are an opportunity to learn as much as possible and apply the obtained knowledge to real-life scenarios, rather than merely ticking across a graduation checklist. In this way, the courses we choose at the graduate level will shape our thinking beyond a mere semester and throughout our entire lives.

Hydrogen Production Via Water Electrolysis

by Hazim Mohamed

Hydrogen is the most extremely effective energy transporter and is produced from several suppliers of raw materials involving water. Eco-friendly and elevated integrity of hydrogen can be attained via water electrolysis amongst various hydrogen production methods. The uprise in population increased stage by stage the global energy consumption accompanied by the quality of living principles. The latter is the root cause of rise in global warming and environmental pollution, which then necessitates the exclusive notions of establishing and implementing renewable energy sources to replace the current ones. A prominent example of such case is to utilize hydrogen as it is a sustainable energy carrier and clean fuel, producing only water as the by-product sans any carbon emissions (Angelo Basile, 2014).



VARIOUS TECHNIQUES TO PRODUCE HYDROGEN (HIMABINDU, 2019)

Due to great energy consumption along with less rate of hydrogen progression, the effectiveness in terms of production via water electrolysis is significantly small to be regarded as a competitor in economy. Consequently, academic investigators carry research based activities related to improvement of affordable electrocatalysts, energy lessening, and ...

PHOTO BY ANURAG SRIVASTAVA



... efficiency, with a highly demanded aim to decrease consumption of energy and enlarge the process accuracy (Ibrahim Dincer, 2017).

The fundamentals of water electrolysis designate that these procedures can yield clean hydrogen by utilizing electricity from renewable energy resources without the emission of carbon dioxide, in dissimilarity to the industrial steam reforming of fossil fuels. Previously, electrolysis by water drew excellent notice owing to the advancement that fuel cells (FCs) have created in distinct presentations and, accordingly, the predictable elevated necessity for clean hydrogen.

References

Angelo Basile, A. I., 2014. *Advances in Hydrogen Production, Storage and Distribution*. Cambridge: Woodhead Publishing.
 Himabindu, S. S. K. V., 2019. Hydrogen production by PEM water electrolysis – A review. *Materials Science for Energy Technologies*, 2(3), pp. 442-454.
 Ibrahim Dincer, C. Z., 2017. *Sustainable Hydrogen Production*. Oxford: Elsevier Inc.

ADDITIONAL DEADLINES

FEB. 11 - LAST DAY TO APPLY FOR MAY GRADUATION, 4:30 P.M.

FEB. 18 - LAST DAY TO APPLY FOR DEGREES TO BE AWARDED IN MAY BY 5:00PM WITHOUT A LATE FEE. A DIPLOMA FEE OF \$47.50 MUST BE PAID EITHER AT REGISTRATION OR AT STUDENT BUSINESS SERVICES (GSC). COMPLETE THE APPLICATION FOR DEGREE FORM VIA THE HOWDY PORTAL. A LATE CHARGE OF \$50.00 WILL BE ASSESSED TO STUDENTS WHO APPLY FOR GRADUATION AFTER 02-18-22 (APPLIES TO MASTERS NON-THESIS, MASTERS THESIS AND DOCTORAL CANDIDATES)

MASTER'S - NON-THESIS

FEB. 18 - LAST DAY FOR MASTER'S STUDENTS TO CHANGE DEGREES WITHIN THE SAME LEVEL (E.G. MASTER'S TO MASTER'S) BY SUBMITTING AN MDD (MAJOR, DEGREE, DEPARTMENT) PETITION AND STILL GRADUATE IN MAY 2022.

MASTER'S - THESIS

FEB. 25 - LAST DAY TO SUBMIT "REQUEST AND ANNOUNCEMENT OF THE FINAL EXAMINATION" OR 10 WORKING DAYS PRIOR TO THE EXAMINATION, WHICHEVER COMES FIRST TO THE GRADUATE AND PROFESSIONAL SCHOOL.

LAST DAY TO SUBMIT "REQUEST FOR EXEMPTION FROM FINAL EXAMINATION"

MAR. 11 - LAST DAY TO TAKE FINAL EXAM (DEFEND THESIS)

DOCTORAL

FEB. 25 - LAST DAY TO SUBMIT "REQUEST AND ANNOUNCEMENT OF THE FINAL EXAMINATION" OR 10 WORKING DAYS PRIOR TO THE EXAMINATION, WHICHEVER COMES FIRST TO THE GRADUATE AND PROFESSIONAL SCHOOL.

MAR. 11 - LAST DAY TO TAKE FINAL EXAM. (DEFEND DISSERTATION OR RECORD OF STUDY)