



(Chemical Engineering Department Present)

Simulation and Design of Photocatalytic Reactors

By Dr. Vishnu Pareek

November 22, 2010

01:00-02:00 p.m.

Lecture Hall 144

In this presentation, we will discuss the state-of-art on numerical techniques for estimating light intensity distribution in photocatalytic reactors. After giving a brief introduction to various photocatalytic reactor designs, a detailed derivation of the radiation transport equation (RTE) has been presented. The RTE is an integro-differential equation and needs appropriate boundary conditions and optical properties of the medium. To provide a boundary condition for the light emitted from the radiation sources, a number lamp source models have been described. Different approaches for the numerical simulation of the RTE have been presented with special emphasis on the Monte Carlo and finite volume (or discrete ordinate) approaches.

Vishnu Pareek is a Professor in the Department of Chemical Engineering at Curtin University, Western Australia. He has a PhD from the University of New South Wales, an MTech from IIT Delhi and BE (Hons) from the University of Rajasthan Jaipur, all in Chemical Engineering and with high distinctions.

Prof Pareek's expertise lies in process simulations and design, with a particular emphasis in applying these tools to industrial-scale problems. He is a Co-Director of Centre for Process Systems Computations, where he is currently supervising a group of over 20 researchers. He has conducted extensive applied research/consultancy for several multinational companies. All of his projects have resulted in direct benefits to his industrial clients. List of his most current projects with industry includes: LNG Process Simulations for Chevron, CFD Simulations of an FCC Unit for BP and Flow Analysis in the Subseas Oil Trees for Woodside, Aker Kvaerner and FMC Technologies.



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