



**Canadian Society for
Chemical Engineering
(CSChE) – Edmonton Section**

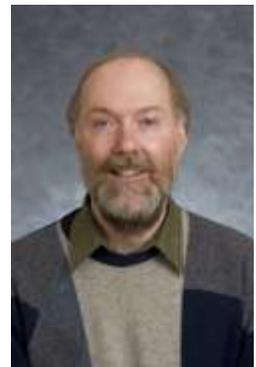
**American Institute of
Chemical Engineers
(AIChE) – Alberta Chapter**

“The Use of Computational Fluid Dynamics in the Chemical Process Industries”

*R.E. Hayes, Ph.D., P.Eng.
Professor and Associate Chair (Research)
Department of Chemical and Materials Engineering
University of Alberta*

Computational Fluid Dynamics (CFD) covers the use of advanced numerical methods for the solution of the partial differential equations that describe the conservation of momentum, mass and energy. CFD has been and continues to be used in most of the engineering disciplines, including Mechanical and Civil Engineering. It has surprisingly been much less used in the Chemical Process Industries. This presentation will be to give a brief overview of the origins and historical development of CFD. The primary commercial tools that are available will be presented. A high level overview of the mathematical basis will be discussed. Finally, a series of applications will be illustrated that will show the versatility of this methodology. The applications will be based on "real world" problems that we have solved. The overall purpose is to demonstrate the power and potential of CFD in the context of the Chemical Process Industries.

Robert E. Hayes received his B.Eng. degree from the Technical University of Nova Scotia in 1979 and a PhD from the University of Bath, England in 1983, both degrees in Chemical Engineering. He joined the faculty at the Technical University of Nova Scotia in 1983, and moved to the Department of Chemical Engineering at the University of Alberta in 1985, where he is currently professor. His research focuses on chemical reaction engineering, with an emphasis on reactor modeling. One of his primary interests is the use of computational fluid dynamics to model structured reactors. Among his interests are automotive exhaust gas after treatment and other applications of emissions reduction.



Faculty Club, University of Alberta
11435 Saskatchewan Drive, T6G 2G9

Monday, April 11th, 2016

***Dinner Buffet - 6:00 PM;
Presentation and Discussion - 7:00 - 9:00 PM***

Members - \$25.00; Non-Members - \$30.00; Students - \$10.00

RSVP (before noon on April 8th) to: Bruce Peachey, FEIC, FCIC, P.Eng.

E-mail: newparadigm@shaw.ca Phone: (780) 448-9195