Invited Lecture

Title： Non-selective hollow fiber separations

Speaker： Prof. Edward L. Cussler
University of Minnesota

Date &Time： **14:00 -16:00 Apr. 23, 2014**

Venue： **Multi-Funtion Hall, IPE Mansion**

Introduction

Edward L. Cussler, currently Distinguished Institute Professor at the University of Minnesota, received his B.E. with honors from Yale University in 1961, and his M.S. and Ph.D. in Chemical Engineering from the University of Wisconsin in 1963 and 1965, respectively, working with E. N. Lightfoot. After thirteen years teaching at Carnegie-Mellon University, Cussler joined the University of Minnesota in 1980. He has written over 240 articles and five books, including Diffusion, Bioseparations, and more recently, Chemical Product Design. Cussler has received the Colburn and Lewis Awards from the American Institute of Chemical Engineers (AIChE), for whom he served as Director, Vice President, and President. He has received the Separations Science Award from the American Chemical Society, the Merryfield Design Award from the American Society of Engineering Education, and honorary doctorate degrees from the Universities of Lund and Nancy. Cussler is a Fellow of the American Association for the Advancement of Science and a member of the National Academy of Engineering.

Non-selective hollow fiber separations

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Selective non-porous hollow fibers were developed for non-cryogenic gas separations. Their success in separating air and upgrading natural gas has driven much of the interest in this type of non-traditional unit operation. Interestingly, the hollow fiber geometry, developed to overcome the low permeability of the selective polymers used, offers an interfacial area per volume between two fluid phases which is ten to one hundred times larger than that normally available in conventional separation processes. If the selective non-porous hollow fiber is replaced with a porous inert fiber of similar dimensions, the new fibers can be used for a wide variety of separations. Examples include scrubbing of flue gas, distillation of olefins with reduced flooding, and the removal of the unpleasant smell from latex paint.