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Opportunities for innovation in chemical industry

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Real growth of chemical industry started in the early 1900s after the discovery and growth of crude oil. The switch from coal to more allowed innovations in fuels as well as petrochemicals. There was rapid growth in innovative processes and products which improved quality of life for all people on earth. Unfortunately by the end of last century this innovation had slowed down. By the year 2000 Chemical Industry had become a mature "brick and mortar" industry with very few breakthroughs in processes and products. Focus in the last two decades has primarily been in improving information and knowledge leading to more automated chemical processes. Fortunately there still are many opportunities for significant innovations in chemical industry. These opportunities exist because there are significant needs presented by the world we live in. These opportunities can be classified in: (1) Improved resource utilization such as drinking water from seawater, olefins from natural gas etc. (2) Improved process efficiency such as improved catalysts for petroleum cracking, improved electrochemical process for aluminum etc. (3) Reduced environmental impact such as reduced CO₂ emissions, CO₂ sequestration and (4) Alternative feed stocks such as cellulosic ethanol. This presentation will provide a summary of the growth and slowing down of chemical industry innovations during the last century and will highlight specific opportunities for spurring innovation in products and processes which could play an important part in renewal of chemical industry during this century.

Biography

Anil Rajaram Oroskar is the Founder and Chief Technology Officer at Orochem Technologies Inc. USA. He is also an Adjunct Professor of Chemical Engineering at University of Illinois, Chicago. He has more than 35 years of experience in the field of designed refinery processes, refinery & petrochemical process improvements, engineering, technical service and operations management. He has received his PhD in Chemical Engineering at University of Wisconsin, Madison in 1981. He has more than 50 US Patents and is a key participant in over 16 international conferences. He was one of the Directors of AICHE Fuels and Petroleum Division and has focused recently on the development of biotechnology, new energy technologies, fuel cells technology and micro-reaction technology.

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