



Jule A. Rabo

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Professor Jule E. Rabo is a consultant to both UOP (a joint venture between Union Carbide Corporation and Allied-Signal Corp) and Union Carbide.

Research Interest

Main field of research of Professor Rabo is catalysis science and technology. He discovered the hydrocracking of petroleum residues at medium pressures; introduced X and Y zeolite catalysis the first time. These discoveries lead to Union Carbide's proprietary position for the use of Y zeolites in petroleum refining. It also provided the scientific basis for the commercial development of Y zeolite based catalysts in the catalytic cracking and hydrocracking processes. Today the application of Y zeolite in catalytic cracking represents the largest single heterogeneous catalyst application in the industry worldwide. Developed the first Y zeolite based catalyst, leading to the commercial development and production of a variety of hydrocracking catalysts presently used in more than half of existing refinery hydrocracking units worldwide. His work explored the electrostatic field within microporous zeolite crystals, established unique surface phenomena and unusual valence states for metals in zeolites (Ni^+ , N^5_6).

Discovered a palladium doped V_2O_5 based semiconductor catalyst for the low-temperature vapor phase oxidation of ethylene to acetaldehyde (1965).

Discovery of spontaneous dissociation of carbon monoxide on nickel, cobalt and ruthenium, and the contrasting lack of CO dissociation over Pd, Pt and Ir metals. Discovery that noble metals such as palladium, platinum and iridium catalyze methanol synthesis from $CO+H_2$ mixture with high activity and selectivity.

Development of new, more stable and more selective catalytic cracking catalysts using silicon enriched Y zeolite. Discovery of aluminium-phosphate molecular sieve catalysts leading to the development of new, advanced industrial processes for the isomerization of small olefins, catalytic dewaxing of heavy petroleum distillates.

Biography

Professor, born in Budapest (1923). Graduated from the Polytechnical University in Budapest with a B.S. degree in Chemical Engineering (1946). Received the Doctor of Sciences degree at the same university (1949).

He started to work as teaching assistant at the Polytechnical University in Budapest (1945) and continued as assistant professor (1946), adjunct professor (1948) and lecturer from 1950 to 1956. Received the Hungarian National (Kossuth) Prize in 1953 for discoveries in petroleum chemistry.

Parallel with the teaching job he worked as a researcher first as a project leader under industrial sponsorship, group leader at the Electron Microscope Laboratory of the Hungarian Academy of Sciences (1948-1951). Became Associate Director of the Hungarian High Pressure Research Institute (hydrocarbon research) (1951).

He joined Union Carbide Corporation in 1957 as a group leader in charge of Catalyst R&D at Union Carbide Corporation, Linde Division, Sieve Department of Tonawanda, New York. He transferred to Tarrytown, New York, to manage catalysis research at the newly formed Union Carbide Corporate Research Department (1961).

Union Carbide Research Fellow (1969). Director of Science for Union Carbide Corporation (1982). First recipient of the New York Catalysis Society's Award for "Excellence in Catalysis" (1982). Honorary doctorate from the Polytechnical University in Budapest recognizing his pioneering work in zeolite catalysis (1986). Dr. Rabo was Director of Science of the new UOP, a joint venture between Union Carbide Corporation and Allied-Signal Corp (1989-1991). Visiting professor, by the French Government to the Pierre et Marie Curie University in Paris (1984, 1990). Catalysis Society's Eugene Hourdy Award for outstanding contribution to catalysis (1989). Award of the Alexander Humboldt Foundation in Germany for contributions to science (1990).

First Varga Memorial Medal from the Hungarian National Academy of Sciences for contributions to chemical and petroleum technology (1991).

He is the author of 51 scientific papers and 61 patents. He is the Editor and co-author of ACS Monograph 171.

Duties:

Invited lecturer on catalysis and surface Chemistry by international and conferences and numerous Universities, Catalysis Societies and industrial research centers in the United States and abroad.

Chairman of the New York Catalysis Society, Chairman of the Gordon Research Conference on catalysis in 1981.

Chairman of the Advisory Board of the USA Lawrence Berkeley Laboratory's National Catalyst Laboratory.

Memberships

International Advisory Committee, Chemical Research Center, Hungarian Academy of Sciences;

Former member of the editorial boards of the Journal of Catalysis and Applied Catalysis Journal.

Member of the editorial board of the Kémikusok Lapja of Hungary.