

Prof. Dr. LIU Zhongmin, Academician of CAE, Director

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Prof. Liu received his BS degree in Physical Chemistry from Zhengzhou University in 1983 and his PhD in Physical Chemistry from Dalian Institute of Chemical Physics in 1990. He has been the Director of Dalian Institute of Chemical Physics, CAS since 2017.

Prof. Liu has long been engaged in the catalysis research, process development, and technology transfer in the field of energy conversion and utilization, and made remarkable achievements.

In 2006, as a leading scientist, Prof. Liu, together with partners and his colleagues, has successfully accomplished the industrial demonstration test of Methanol (coal or natural gas based) to olefins technology (DMTO) technology. In 2010, DMTO technology was first licensed to Shenhua Group to build the world's first commercial coal to olefins plant (600 kt/a polyolefins) in Baotou, China, which was successfully started up in August 2010. For the contribution of DMTO technology, Prof. Liu and his team won the first prize of the National Technological Invention Awards of China in 2014. So far, DMTO process has been licensed to 31 units with a total olefins production capacity of 20.25 Mt/a. And fourteen commercial DMTO units have been put into stream with olefins production capacity of 8.36 Mt/a. This breakthrough leads the coal to olefins to become a new industrial sector in China, which greatly changes Chinese light olefins supply and impacts the light olefins market worldwide. Besides DMTO, Prof. Liu has also developed many other new catalysts and catalytic processes, such as methanol to ethanol (DMTE), propylene to isopropanol and methanol to dimethyl ether. In 2017, the world's first Coal-to-Ethanol (methanol to ethanol) demonstration plant (100 KTA ethanol) has been commissioned. Up to now, three DMTE units have been licensed with the ethanol production capacity of 1.4 MMt/a. It is expected that a number of more DMTE units will be licensed in near future. As DMTE technology can turn the relatively abundant of coal resources into ethanol, it can safeguard China's food supply security while reduce air pollution since China is now implementing the new policy for blending gasoline with 10% ethanol.

