

Doctor Honoris Causa : Lodz Technical University, Lodz, POLAND

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Presented by

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LAUDATIO/ CITATION

Professor Arun Sadashiv Mujumdar

Professor Mujumdar is a distinguished scientist in the world's chemical and process engineering, especially in the theory and practice of drying processes.

He was born in India in 1945. He graduated with honours from the University of Mumbai with a degree of Bachelor of Chemical Engineering and continued his education at a leading university of technology in Canada, i.e. McGill University in Montreal. In 1968 he received the degree of Master of Engineering. Next, he spent 2 years (1969-71) as a Research Engineer in industry (Carrier Corp. Syracuse, USA) where he also worked on his PhD dissertation which he defended in 1971 as soon as he returned to McGill University. As an academic teacher he was promoted consecutively to the following positions: Research Associate (1971-75), Assistant Professor (1975-78), Associate Professor (1978-86) and Professor (1986-2000). In 2000 he accepted the post of Professor at the Department of Mechanical Engineering of the National University of Singapore (NUS) where he is employed today maintaining the position of Adjunct Professor at McGill University.

Initially, Prof. Mujumdar's research interests focused on basic issues of heat and mass transfer which were the background for the development of main research field, i.e. drying theory and techniques.

Prof. A.S. Mujumdar is a leading personality in the world's drying technology. He is often referred to as the "Drying Guru". His achievements are impressive and include numerous contributions in the area of research, cooperation with industry, international relations, positions held in both universities, organization of international conferences, promotion of young researchers and many others. His editorial achievements are especially worth noting.

He is an author and co-author of over 400 publications in scientific journals, 100 chapters in books and over 300 conference publications. He also delivered 60 plenary lectures during international conferences held on 4 continents. Prof. Mujumdar was a consultant in 70 industrial plants in USA, Japan, Germany, Australia, China and other countries. He is an editor and co-editor of 60 books on drying and transport processes. He supervised over 40 dissertations and was a mentor of young interns from many countries. His great contribution was to familiarize English-speaking scientists involved in drying technology with research results obtained in Russia, Germany, Japan and other countries.

The monographs and journal *Drying Technology* edited by Prof. Mujumdar are also well known in Poland, especially at the Technical University of Łódź where members of staff and students use them as a valuable source of information containing knowledge on boundary

layer theory, transport thermodynamics and physics of disperse materials. His extensive editorial activity contributes to the synthesis of current knowledge on drying technology, providing a consistent image which reflects the role of mass transfer in capillary-porous systems and dynamics of non-equilibrium evaporation processes in dried bodies.

His research, experimental and modelling works cover almost all physical forms of wet materials dried in at least 20 various systems. Many of these works had innovative nature and were later carried on and developed by other researchers.

Professor Mujumdar was granted many international awards and honours for his outstanding achievements and contributions to chemical engineering, especially drying technology and heat and mass transfer.

However Professor Mujumdar's key achievement is his contribution to the promotion and development of drying technology as a multi- and interdisciplinary field of study on a global scale. He initiated the biennial International Drying Symposium (IDS) which has been the main forum for the exchange of ideas, experience and innovations in drying technology since 1978. As the permanent Chairman of Scientific Committees of the Symposia, Prof. Mujumdar contributed to the continually increasing importance of the meetings. An equally important achievement was the launching of *Drying Technology – an International Journal* in 1985. Prof. Mujumdar, as Editor-in-Chief of this journal since 1988, has contributed to its world recognition and renowned position on the Philadelphia list. His activity enabled consolidation of the specialists in drying technology from over 50 countries. Numerous regional conferences on drying were held in various parts of the world. Prof. Mujumdar is usually a co-organizer and promoter of such meetings, ensuring their continuity and proper level. His editorial work on the "Handbook of Industrial Drying" is also worth mentioning. The third edition of this book often referred to as "The Bible of Drying" was published in 2007 (1300 pages, 53 chapters, 69 authors from 22 countries including 6 chapters written by Polish authors).

Specific research areas cover paper drying, water steam drying, electroosmotic dewatering, computational fluid dynamics, unsteady melting and freezing phenomena, drying in fluidized, vibrofluidized and spouted beds, transport processes in turbulent jet flows, heat pumps, drying of thermolabile materials and industrial applications of the drying process. Owing to Professor Mujumdar's researches many aspects of the drying process could be explained and innovative design solutions and special techniques were introduced.

Prof. Mujumdar's rich scientific output, both in terms of source literature and monographs, made it possible to include the drying process into other theoretical unit operations, arrange and extend the data which refer to the classification, selection and design of drying equipment. It also helped in recognizing the drying issues neglected so far and elevating them to the level of more advanced unit operations in chemical and process engineering.

Prof. Mujumdar spent many months as a visiting professor in the leading scientific centres in USA, Japan India, Brazil, China, Argentina and Malaysia and he conducted seminars in numerous universities in Europe, Asia, North and South Americas and the Pacific Rim. Due to the unique role of Prof. A.S. Mujumdar and his contributions, drying technology gained an important position, which differed significantly from the one it had over 30 years ago.

In general, Prof. A.S. Mujumdar's activities in respect of his editorial work, education of young staff, research and innovative contributions, his extensive consultations with industry, plenary lectures, scientific relations with major drying research centres in the world and many other pioneer actions promoting the drying process have put him in the drying community as a leader and visionary incessantly for almost three decades. His involvement, valuable and

talent resulted in the development of a drying unit operation as a modern interdisciplinary discipline having its own R&D prospects. The drying technology, which exists for many years, never before has been of such importance and significance in the concordant assessment of academia and industry people as well as sponsors of research projects. We owe this to Prof Mujumdar.

I believe that my opinion on the role Professor Mujumdar played in the development of drying will be best supported by a quotation from the address by Professor Jamal Yagoobi of Illinois Institute of Technology in Chicago, on the occasion of the 60th anniversary of Prof. Mujumdar: “Honestly, I cannot think of any other individual whose contribution to the field of drying could come close to Professor Mujumdar’s”.

All the achievements of Prof. Mujumdar have been hard-fought and resulted from his commitment. I trust that one more person is worth mentioning here, which is in the shadow of his activity: Mrs Purnima Mujumdar, who has been of great assistance in his life and work. It is our pleasure to welcome you, Purnima – we are happy having you with us today. We know and appreciate your hard work in the name of disseminating knowledge.

The relationships of Prof. Mujumdar and Polish chemical engineering have been multilateral and intense. The beginning of these relations dates back to the seventies of the 20th century. Prof. Mujumdar visited Poland many times. He participated in the IDS in Krakow organized by the Lodz Drying Group where he was awarded the prestigious Copernicus Medal of the Polish Academy of Sciences for Contributions to Chemical Engineering. In 2005 he took part in the 9th Polish Drying Symposium in Poznan where he delivered a plenary lecture. Three young members of staff from Lodz were on long-term scientific internships at McGill University in Montreal under the supervision of Prof. Mujumdar. Our cooperation has resulted in many common publications.

Owing to modern means of communication we are in continuous link with Professor Mujumdar and are kept informed about the latest scientific and industrial achievements.

Ladies and Gentlemen, this is how I would like to introduce to you the Candidate for the title of Honorary Doctor of the Technical University of Łódź – Professor Arun Sadashiv Mujumdar

- a man of high scientific authority and world renown;
- the author of numerous publications, chapters in books, monographs, conference presentations and lectures;
- the editor and co-author of numerous monographs which are the source of modern knowledge on drying and related fields;
- the initiator of the World Drying Symposia and the flagship journal on drying;
- the distinguished promoter of drying on a global scale;
- the professor who has contributed to the fruitful cooperation of the Faculty of Process and Environmental Engineering of the Technical University of Łódź with McGill University in Montreal and National University of Singapore;
- the personality of great culture and moral values;
- a friend of our Technical University and Poland.