

## The KONA Award 2018

The KONA Award 2018 was presented to Dr Mojtaba Ghadiri, Professor of Chemical Engineering at the University of Leeds, UK, Fellow of the Royal Academy of Engineering, Chartered Engineer and Fellow of the Institution of Chemical Engineers. For the period 2001 to 2011, he was the founding Director of the Institute of Particle Science and Engineering at Leeds. He graduated in Chemical Engineering from the University of Tehran, Iran, and has an MSc from Imperial College London (with Distinction) and PhD from the University of Cambridge, for which he was Awarded P.V. Danckwerts Prize. He worked for Unilever Research for two years before taking up an academic post at the University of Surrey, where he worked for 18 years before joining Leeds in 2001. He has served the editorial boards of five learned journals, and until recently was the Chairman of the Europe & Africa Board of KONA Powder and Particle Journal, and the Subject Editor of Chem. Eng. Res. & Design (ChERD). He has acted as an expert assessor for the Australian, Belgian, Canadian, Italian, Norwegian and Swedish Research Councils as well as the Engineering and Physical Sciences Research Council (EPSRC), which is the UK's main agency for funding research in engineering and the physical sciences, and as an expert witness for a number of legal cases. He has contributed to the organization of a large number of national and international conferences, most notably World Congresses on Particle Technology, the European Symposia on Comminution and Classification, International Symposia on Agglomeration and national meetings via the Particle Technology Special Interest Group of IChemE. He is the chair of judging panel of Geldart Medal of IChemE, and until 2019 he was a Consultant of the International Fine Particle Research Institute (IFPRI). In April 2010, he was awarded the Inoya Award of the Society of Powder Technology, Japan, for his contributions to the promotion of international cooperation in powder technology.

His research has been focused on the development of relationships between microscopic and macroscopic properties and phenomena; i.e. the way in which the microstructure of particulate solids and the micromechanics of their interactions in process equipment influence the performance of the process and product characteristics. His work on the following topics has had notable academic and industrial impacts:

**Attrition and milling:** Novel methods of grindability and attrition testing.

**Powder mechanics:** Analysis of cohesive powder rheology, accelerated powder caking testing, powder dispersion, flowability testing by Ball Indentation Method.

**Particle characterization:** New method for measuring single particle adhesion, sol-gel production of nano-particle systems for solid oxide fuel cells.

**Tribo-electrification & electro-coalescence:** Development of three test methods for tribo-electric charge transfer measurement. Analysis of dynamics of coalescing droplets under electric fields and development of new art for compact electro-coalescer design.

**Granulation and agglomeration:** 3D printed agglomerates for granule breakage tests, characterization of strength and structure of granules, scale-up of high shear granulators.

**Modelling by CFD-DEM:** Analysis of powder rheometry; effect of particle shape, inter-particle coating variability in rotary batch coaters, a new linear contact model for elasto-plastic and adhesive contacts, spray drying aerodynamic dispersion of cohesive clusters, modelling of dense and complex granular flow in high shear mixer granulators. Further information on his research activities and collaborations can be viewed at: <http://ghadiri-group.leeds.ac.uk/>.



Mr. Y. Hosokawa (Left), the president of Hosokawa Foundation and Prof. Ghadiri, the KONA Awardee