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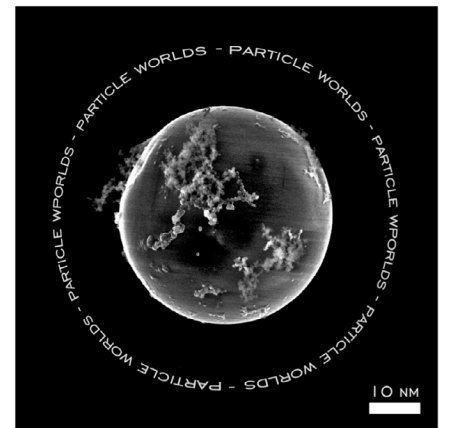
Wednesday, October 16, 2013 - 3:30 -5:00 PM Keller Hall 3-180

AEROSOL BASED PROCESSING OF FUNCTIONAL MATERIALS - A SHEER LIMITLESS TOOL BOX

PROFESSOR GERHARD KASPER

Professor of Chemical Engineering, and Head, Institut für Mechanische Verfahrenstechnik
Karlsruhe Institute of Technology, Germany

Abstract: Functional nano-materials are both a modern buzzword and an increasingly complex cosmos of sophisticated structural features on the molecular, nano- and micro-scales required to obtain precisely defined physical and chemical properties (“functionalities”). Particles are the building blocks common to all these materials. Aerosol based processes play a key role in tailoring the required complex structures of particulate materials. Far less obvious, aerosol science also offers a rich tool box of techniques to explore the complex relationships between particle structure and function, without which these novel materials could not be designed. Using catalysts as a frequent example, his talk will highlight the process options as well as the analytical tool box of aerosol science.



Gerhard Kasper is professor of chemical engineering at the Karlsruhe Institute of Technology in Germany and head of the Institut für Mechanische Verfahrenstechnik dedicated to particle technology. He graduated from the University of Vienna, Austria, where he received his Ph.D. in experimental physics and holds the Venia legendi. He moved to Germany following a dual career including one-and-a-half decades at Air Liquide America Corp. with responsibilities as Director of Engineering & Technology, Vice President of R&D and Director of its Chicago Research Center.

Gerhard Kasper has contributed to a better understanding of the physics and chemistry of gas-particle systems (“aerosols”) in numerous engineering applications, including the dynamics of fractal particles from combustion processes – at a time when the prefix “nano” was not yet a household word – the interaction of particles with surfaces in ultra-clean process environments for the microelectronics industry, in gas filtration technology, and in developing new processes for particle based “designer materials” such as catalysts. Coming up with new analytical tools for in-process, in-situ characterization of particles with regard to structure and function has been a key endeavor of his at all times and for all applications, most recently for nanoparticles in biological systems.

Professor Kasper is the founder and director of the European Filter Consortium at KIT (since 2002), and the co-initiator and (since 2008) scientific director of the BASF-KIT JointLab dedicated to integrated process design for structuring nano-particulate materials in next-generation applications. He is the author of some 150 scientific papers, contributed to 8 books, holds 10 patents, and has received distinguished awards from the aerosol and filtration communities. Between 1988 and 2012 he was the Editor-in-Chief of the Journal of Aerosol Science.

Please join us for a wine and cheese reception, sponsored by TSI Incorporated, at the Heritage Gallery, McNamara Alumni Center, immediately following the lecture.