Hamid Arastoopour

Hamid Arastoopour is presently Max McGraw Professor of Chemical and Environmental Engineering at Illinois Institute of Technology (IIT) in Chicago, Illinois. He has authored more than 100 publications, including 5 book chapters and 12 U.S. patents. He is a Fellow of the American Institute of Chemical Engineers (AIChE) and currently serves on the editorial board of the *Powder Technology Journal*. He has received numerous local and national awards from the American Institute of Chemical Engineers including the Ernest W. Thiele Award in 1997, the Fluor Daniel Lectureship Award in Fluidization and Fluid/Particle Systems in 1999, the Donald Q. Kern Award in Heat Transfer and Energy Conversion in 2001, and the Fluidization Process Recognition Award in 2003.

His most significant research contribution is in the area of particle technology and multiphase flow including advanced measurement techniques and computational fluid dynamics for gas/solid flow systems, such as: fluidized beds and mixing, formation, pulverization and agglomeration of particles. His specific research activities include:

CFD Applications to Gas-solid Flow Systems and Fluidization

This project includes the application of computational fluid dynamics (CFD) codes, such as Fluent and CFX, to simulate fluid/particle flow behavior in mixers and rotating, bubbling, and circulating fluidized beds.

Pulverization and Agglomeration

The project includes: a) experimental study of pulverization and agglomeration of polymeric materials and elastomers under high shear and compression forces using the Solid State Shear Extrusion (SSSE) process; and b) particle agglomeration and growth in chemical and pharmaceutical processes.

Nanoparticles

This project includes experimental measurement of flow parameters and fluidization characteristics of nanoparticles, as well as mathematical and numerical simulation of nanoparticle flow systems.

Particle Characterization and Surface Modification

This project involves characterization of polymeric and rubber particles produced using the Solid State Shear Extrusion (SSSE) process, and surface properties modification by preparing amphiphilic particulate phase semi-interpenetrating polymer networks using rubber particles.

Multiphase Flow Mixing and Crystal Growth in Pharmaceutical Processes

This project includes using a computational fluid dynamics (CFD) approach to simulate mixing and crystal growth using population balances and CFD codes in stir tank reactors.