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Summit, New Jersey 07901

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MEC 224

The Fabrication of Nano-Composites and Engineered Particles Using Dry Powder Processing Technique

The development of nanotechnology is closely related to the new economy full with high tech products towards 21st century. As a new material, the nanoparticles have certainly caught the imaginations of researchers around the world. Although the production technologies of nanoparticles had significant progress in the past few years, the commercial applications of nanoparticles are often limited by their cost, handling, and safety issues. To address those application problems, a dry nanoparticle processing technology was developed to produce nano-composites and engineered particles. With the technology, the nano materials can be bonded together using mechanical energy without any binders in a dry process. It can create nano multifunctional composite materials contributing to the development of advanced materials and devices for batteries, fuel cells, ceramics, metals, superconductors, and pharmaceuticals. Application examples and new development of the technology are to be illustrated in the presentation. The newly developed technology is an enabling technique for many nanoparticle applications.

Dr. C.C. Huang is the Director of Research and Development, Nanotechnology and Micron Products at Hosokawa Micron Powder Systems, which is an operating unit of Hosokawa Micron International Inc., a global supplier of systems and equipment related to material science and engineering. He holds an M.S. degree in engineering from Illinois Institute of Technology and a Ph.D. degree in chemical engineering from West Virginia University. He has many years' experience in industrial R&D, as well as academia, in the field of powder technology and science. Dr. Huang specializes in powder processing, powder characterization, powder granulation, and fluidization. He has published over 30 articles and 8 patents, chaired several meetings, and continues to be an active member in a number of scientific and engineering societies.

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