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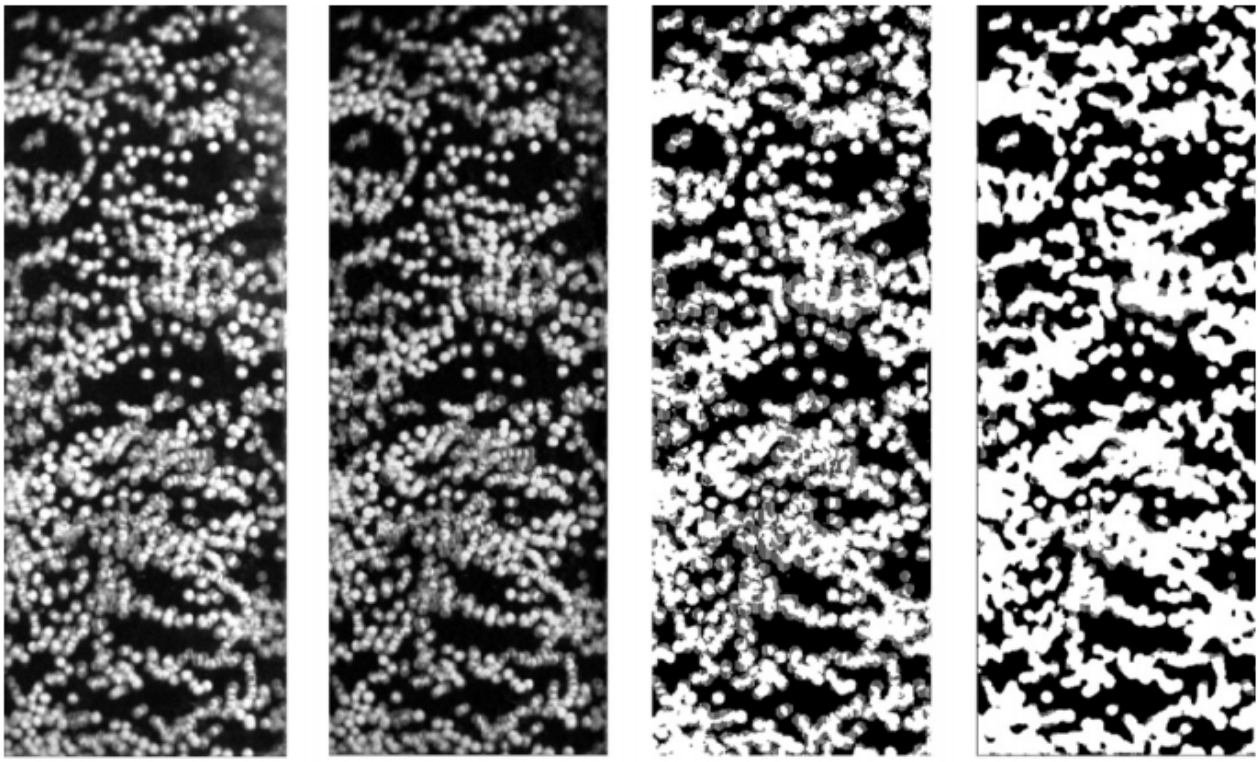

Seminar
Particle Clustering in Fluidized Systems

10 MAGGIO 2010 ore 15.30

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Seminar
Particle Clustering in Fluidized Systems

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Researchers have reported for several years that there is evidence of particle clustering (also known as agglomerating, clumping, etc.) in fluidized systems. This clustering forms particles that are larger than the smaller, individual particles and, therefore, affects the behavior of the fluid-particle system. For example, cyclones routinely collect material smaller than they should be able to collect because of clustering. Also, the entrainment of fine particles is often much lower than predicted or expected - also because of clustering. Although it is known that Geldart Group C (cohesive materials) form clusters, it is also the case that larger Group A materials that contain a relatively high concentration of fines can cluster together.

If particles cluster together, then the actual particle size distribution in a system will be larger than the measured particle size distribution. This is because instruments that measure particle size destroy the clusters during the measuring process.

Therefore, Particulate Solid Research, Inc. (PSRI) has been developing a new technique to measure the actual particle size distribution *in situ*. The technique consists of using an optical boroscope and a high-speed video camera to collect images of the particles, and then using an image analysis program to determine the particle size distribution of the clusters.

A summary of the indirect evidence of clustering in fluidized systems as well as a description of the new technique to measure the in situ particle size will be presented, as well as videos of clustered particles.

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