

Rate Processes in Particle and Powder Technology

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Particle and powder processing plays an essential role in a wide range of industries, spanning foods, pharmaceuticals, consumer products, additive manufacturing, specialty chemicals, minerals processing, and many more. Despite the importance of powders in manufacturing, many of the unit operations remain difficult to design and predict, and require extensive experimentation and trial and error for scale up. It is clear that better fundamental understanding is required.

My research focuses on understanding particle-particle and particle-fluid interactions, using these interactions to develop mechanistic understanding of powder processes, and identifying and quantifying the rate processes that are occurring. In this talk, I will discuss some of my research on the rate processes of three different methods of powder processing: powder coating, granulation, and spherical agglomeration.