Formation of Particulate Solids from Liquids

Matthias Kind

Karlsruhe Institute of Technology, Thermal Process Engineering, matthias.kind@kit.edu

Large amounts of particulate solids are produced to serve our various needs. The application of these solids is a very divers field, and hence their characteristics must span wide, too. The formation of such solids may done either by top-down or by bottom-up processes. Typical top-down processes would be crushing, cutting or milling. In contrast, our expertise is on bottom-up processes, in particular lays our expertise on processes where the feedstock is a liquid. Relevant bottom-up processes with liquid feed stock are spray granulation, crystallization and precipitation. These three exemplary processes are typical for the production of either rather coarse, or of fine or even of very fine particulate solids ranging from the millimetre to the nanometre scale. In the talk, common grounds of these processes will be explored as well as specific aspects. Some focus will be laid on how to model and simulate such formation processes. Structural aspects like the formation of agglomerates will be discussed.