

综述

Microscale and Nanoscale Process Systems Engineering: Challenge and Progress

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摘要 This is an overview of the development of process systems engineering (PSE) in a smaller world. Two different spatio-temporal scopes are identified for microscale and nanoscale process systems. The features and challenges for each scale are reviewed, and different methodologies used by them discussed. Comparison of these two new areas with traditional process systems engineering is described. If microscale PSE could be considered as an extension of traditional PSE, nanoscale PSE should be accepted as a new discipline which has looser connection with the extant core of chemical engineering. Since "molecular factories" is the next frontier of processing scale, nanoscale PSE will be the new theory to handle the design, simulation and operation of those active processing systems.

关键词 [process systems engineering](#) [microchemical engineering](#) [nanotechnology](#) [molecular factory](#)

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