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**Particle Transport and Deposition in Wavy Channels** MARK GOODWIN, PRATAP VANKA, University of Illinois at Urbana-Champaign — Wavy channels have rich flow physics, consisting of trapped vortices in the troughs and instabilities induced by the shear layers and curved boundaries. At modest Reynolds numbers, the flow becomes unsteady by Kelvin-Helmholtz (bellowed channels) or Tollmien-Schlichting instabilities (serpentine channels). The fluid dynamic and heat /mass transfer characteristics of wavy channels have been studied previously. Such flow phenomena can also have significant effect on particle transport. In this paper we have studied particle transport and deposition in bellowed and serpentine channels for different Reynolds numbers and particle Stokes numbers. A computational technique that solves the governing equations using a fractional step procedure on a Cartesian grid has been used. The complex boundary has been simulated by the Immersed Boundary Method (IBM). Particle concentration patterns as well as deposition rates are presented under varied conditions.

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