1056-90-1745   **Ali Kemal Unver*** (`aunver@asu.edu`), 3000 High View Dr., Apt.#1522, Henderson, NV 89014.
Extraction of Transport Coefficients in Stochastic Production Systems.

Continuum models of re-entrant production systems are developed that treat the flow of products in analogy to traffic flow. Specifically, the dynamics of material flow through a re - entrant factory via a parabolic conservation law is modeled describing the product density and flux in the factory. The basic idea underlying the approach is to obtain transport coefficients for fluid dynamic models in a multi-scale setting simultaneously from Monte Carlo simulations and actual observations of the physical system, i.e. the factory. Since partial differential equation (pde) - conservation laws are successfully used for modeling the dynamical behavior of product flow in manufacturing systems, a re - entrant manufacturing system is modeled using a diffusive pde. The specifics of the production process enter into the velocity and diffusion coefficients of the conservation law. (Received September 22, 2009)