1018-60-75   **Márton Balázs**, **Firas Rassoul-Agha** and **Timo Seppäläinen*** (`seppalai@math.wisc.edu`), Mathematics Department, University of Wisconsin-Madison, Madison, WI 53706. *Fluctuations around characteristics for some interacting particle systems.*

Certain interacting particle systems in one dimension have fluctuations on the scale $n^{1/4}$ when the evolution is observed around a characteristic curve of the macroscopic equation. Examples include the random average process and independent walks. In these cases the characteristic curves are parallel straight lines. In a space-time scaling limit the fluctuations converge to a family of Gaussian processes. If the particle system is in equilibrium, the time marginal of the limit process is fractional Brownian motion with Hurst parameter 1/4. There are related results for quenched mean processes of certain random walks in random environment. The $n^{1/4}$ scaling picture contrasts with the $n^{1/3}$ scaling with Tracy-Widom limits known for asymmetric exclusion and Hammersley processes. (Received February 27, 2006)