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Spectral representation of the scaling limit solutions of the Burgers' equation with random data

The n-dimensional Burgers' equation with random initial condition is considered. The initial condition has the gradient form and the initial velocity potential is a zero-mean measurable mean-square differentiable homogeneous and isotropic real Gaussian random field with long-run dependence. Parabolic scaling limit of the Burgers'equation solution is studied and an explicit expression for the spectral representation of the limiting random field is provided in terms of stochastic integrals. These results are joint work with N. Leonenko and W. Woyczynski.

Reference: N. N. Leonenko, V. N. Parkhomenko, W. A. Woyczynski, Spectral properties of the scaling limit solutions of the Burgers' equation with singular data, *Random Oper. Stoch. Eq.* **4** (1996), 229–238.