

Nonlinear fluctuating hydrodynamics and equilibrium time correlations of classical spin chains

Herbert Spohn *

spohn@ma.tum.de

Except close to critical points, equilibrium time correlations on large space-time scales are well captured by the conventional Landau-Lifshitz Gaussian fluctuation theory. In one space dimension, however, such an ansatz fails. One proposal is to go beyond linearised Euler by including the next order quadratic terms, which makes the fluctuation theory non-linear. We discuss the strategy in the context of a non-integrable classical spin chain (discrete Landau-Lifshitz equations).

*Zentrum Mathematik, M5, Technische Universität München, Boltzmannstrasse 3, 85748 Garching bei München, GERMANY