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Percolation process in the Presence of Velocity Fluctuations: Two-loop Approximation

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Critical behaviour of directed bond percolation is studied in presence of an advective velocity field [1,2]. The velocity field is modeled by Kraichnan ensemble [3]: time-decorrelated compressible Gaussian velocity field. The model is studied by means of field-theoretic approach. Renormalization group (RG) method is used in order to analyse asymptotic large-scale behaviour of the model near its critical point and to calculate perturbatively all fixed RG points and critical exponents in the framework of double-expansion scheme [4,5]. We classified possible asymptotic regimes corresponding to infrared stable fixed points of the RG equations which have been calculated up to the two-loop approximation.

Short biography note

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