Random walk in random environment on a strip: a renormalization group approach

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We present a real space renormalization group scheme for the problem of random walk in random environment on a strip, which includes the one-dimensional random walk in random environment with bounded non-nearest-neighbour jumps. We show that the model renormalizes to an effective one-dimensional random walk with nearest-neighbour jumps and conclude that Sinai scaling is valid in the recurrent case, while in the sub-linear transient phase, the displacement grows as a power of the time.