

Combinatorial Problems Raised by Statistical Mechanics
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Asymptotic analysis of vicious walkers between
walls and on circles, and random walks in alcoves of
affine Weyl groups

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Abstract

I shall explain that the analysis of the long term behaviour of vicious walkers between two impenetrable walls, as well as those on a circle, belongs to the more general framework of the analysis of the long term behaviour of random walks in (scaled) alcoves of affine Weyl groups. To resolve the latter problems, the starting point is enumeration results of David Grabiner. In the course of the proofs, symmetric function theory and certain identities for classical group characters play a major role.

This is in part joint work with Tony Guttmann and Xavier Viennot.