



Travelling Randomly on the Poincaré Half-Plane with a Pythagorean Compass

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A random motion on the Poincaré half-plane is studied. A particle runs on the geodesic lines changing direction at Poisson-paced times. The hyperbolic distance is analyzed, also in the case where returns to the starting point are admitted. The main results concern the mean hyperbolic distance (and also the conditional mean distance) in all versions of the motion envisaged. Also an analogous motion on orthogonal circles of the sphere is examined and the evolution of the mean distance from the starting point is investigated.

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