

Performing random walk without any randomness

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Abstract

Can one emulate the simple random walk without actually doing anything random? This talk will be about a deterministic version of random walk called rotor walk, and we will measure its performance in emulating the simple random walk with respect to different parameters, e.g., the shape of the trajectory, number of returns to the origin, etc. In particular, we will see that the number of returns to the origin for the rotor walk can be made equal to the same number for the simple random walk. This resolves a conjecture of Florescu, Ganguly, Levine, and Peres (2014).