Quantum Physics

Absorption Probabilities for the Two-Barrier Quantum Walk

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Let p_j^(n) be the probability that a Hadamard quantum walk, started at site j on the integer lattice {0,...,n}, is absorbed at 0. We give an explicit formula for p_j^(n). Our formula proves a conjecture of John Watrous, concerning an empirically observed linear fractional recurrence relation for the numbers p_1^(n).

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