PROBABILITY AND MATHEMATICAL STATISTICS Vol. 34, Fasc. 1 (2014), pp. 1–22

PERSISTENCE PROBABILITIES FOR A BRIDGE OF AN INTEGRATED SIMPLE RANDOM WALK

Frank Aurzada Steffen Dereich Mikhail Lifshits

Abstract: We prove that an integrated simple random walk, where random walk and integrated random walk are conditioned to return to zero, has asymptotic probability $n^{-1/2}$ to stay positive. This question is motivated by random polymer models and proves a conjecture by Caravenna and Deuschel.

2000 AMS Mathematics Subject Classification: Primary: 60G50; Secondary: 60F99.

Keywords and phrases: Integrated random walk, local limit theorem, persistence probability.

THE FULL TEXT IS AVAILABLE HERE