RUTGERS UNIVERSITY
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Seminar

Speaker:	Vladislav Vysotsky, University of Delaware
Title:	On probability that an integrated random walk stays positive
Date:	Wednesday October 7, 2009
Time:	3:20 P.M.
Place:	552 Hill Center

Abstract

Let S_n be a centered random walk, and define the new sequence $\sum_{i=1}^{n} S_i$, which we call the *integrated random walk*. We are interested in the asymptotics of

$$p_N := P\Big\{\min_{1\le k\le N}\sum_{i=1}^{k} S_i \ge 0\Big\}$$

as $N \to \infty$. Sinai (1992) proved that $p_N \asymp N^{-1/4}$ if S_n is a simple random walk. Our results show that p_N has the same asymptotics for some other types of random walks, including Laplace walk. We also prove that $p_N \le cN^{-1/4}$ for any centered lattice walks and certain continuous walks.