1096-68-1517 **David White*** (dwhite03@wesleyan.edu), Wesleyan University Department of Mathematics, Exley Science Tower, Room 655, 265 Church Street, Middletown, CT 06457. *Traversals of Infinite Graphs with Random Local Orientations.*

In 1921 George Polya famously resolved the question of recurrence versus transience of the simple random walk on integer lattices. In this talk we will study the analogous question for random basic walks, which are random processes related to the problem of graph exploration by a mobile entity. After discussing recurrence results on other generalizations of simple random walks–en route introducing the notion of a random rotor router–we'll resolve the question for the random basic walk on lattices and then extend this result to a much larger class of graphs. If there is time at the end we'll return to the open problem on finite graphs from the paper which originally introduced the random basic walk. (Received September 16, 2013)