1018-60-63 **Jason R. Schweinsberg*** (jschwein@math.ucsd.edu), Department of Mathematics, 0112, University of California, San Diego, 9500 Gilman Drive, La Jolla, CA 92093-0112. *The loop-erased random walk and the uniform spanning tree on the four-dimensional discrete torus.*

Let x and y be points chosen uniformly at random from the four-dimensional discrete torus with side length n. We show that the length of the loop-erased random walk from x to y is of order $n^2(\log n)^{1/6}$, resolving a conjecture of Benjamini and Kozma. We also show that the scaling limit of the uniform spanning tree on the four-dimensional discrete torus is the Brownian continuum random tree of Aldous. Our proofs use the techniques developed by Peres and Revelle, who studied the scaling limits of the uniform spanning tree on a large class of finite graphs that includes the d-dimensional discrete torus for $d \geq 5$, in combination with results of Lawler concerning intersections of four-dimensional random walks. (Received February 23, 2006)