

**Meeting:** 1002, Pittsburgh, Pennsylvania, SS 7A, Special Session on Knots and Macromolecules

1002-57-67      **De Witt Sumners** (sumners@math.fsu.edu), Florida State University, Tallahassee, FL 32306-3027, and **Stu Whittington\*** (swhittin@chem.utoronto.ca), University of Toronto, 80 St George Street, Toronto, Ontario M5S 3H6, Canada. *Counting almost unknotted embeddings*. Preliminary report.

Let  $G$  be a planar Eulerian graph. When  $G$  is embedded in  $R^3$  the embedding can be knotted, ie not ambient isotopic to the planar embedding. If the embedding is knotted, but no cycle is knotted, we say that the embedding is *almost unknotted*. We show that when such graphs are embedded in the simple cubic lattice  $Z^3$ , and stratified according to the number of edges in the embedding, the exponential rates of growth of the numbers of unknotted embeddings and almost unknotted embeddings (as the number of edges increases) are identical. Moreover, both classes of embeddings are exponentially rare in the set of all embeddings of  $G$ . One can formulate similar questions about embeddings of connected  $p$ -complexes in  $Z^{p+2}$ . Some partial results for these higher dimensional cases will be presented. (Received August 22, 2004)