1038-05-157   **Robert B Ellis*** (`rellis@math.iit.edu`), 10 W. 32nd St., E1 Rm208, Chicago, IL 60616, and **James P Ferry**, 11911 Freedom Drive, Ste. 800, Reston, VA 20190. *Variance of the subgraph count for sparse Erdős-Rényi graphs.* Preliminary report.

We develop estimates for the variance of the number of copies of a small subgraph H in the Erdős-Rényi random graph by case analysis of the types of subgraphs $H' \subseteq H$. The central technique is a direct enumeration scheme which gives the asymptotic variance in the sparse case including constant average vertex degree. For a "small" number of vertices, we sharpen the enumeration scheme by classifying subgraphs $H' \subseteq H$ and their contribution to the variance. This results in a bracketing of the small subgraph count variance for all parameters of the random graph. The estimate applies to a decision statistic for the detection of the insertion of H into the random graph by an adversary. (Received February 06, 2008)