1030-05-233   **Olgica Milenkovic*** (`milenkov@colorado.edu`), 211 West California Avenue, Urbana, IL 61801, and **Emina Soljanin** and **Philip Whiting**. *Asymptotic Enumeration of Trapping Sets in Random Tanner Graph Ensembles.*

We address the problem of evaluating the asymptotic, normalized, average distributions of a class of combinatorial configurations in random, regular and irregular binary low-density parity-check (LDPC) code ensembles. The configurations considered are known as trapping sets; trapping sets represent subsets of variable nodes in bipartite Tanner graphs of codes that play an important role in determining the height of the the error-floor in its performance curve.

The techniques used for deriving the spectra include large deviation theory and statistical methods for enumerating binary matrices with prescribed row and column sums. These techniques can also be applied in a setting that involves more general structural entities such as subcodes and/or minimal codewords, which are known to characterize other important properties of soft-decision decoders of linear block codes. (Received August 03, 2007)