1067-94-1716 **Michael E O'Sullivan*** (mosulliv@math.sdsu.edu), Dept of Mathematics and Statistics, San Diego State University, San Diego, CA 92120, and **John Brevik**. *The sum-product algorithm for binary codes having check nodes of degree two.*

The sum-product algorithm for decoding of binary codes is analyzed for bipartite graphs in which the check nodes all have degree 2. The algorithm simplifies dramatically and may be expressed using linear algebra. Exact results about the convergence of the algorithm are derived and analysis of the sum-product algorithm on trapping sets is given. (Received September 21, 2010)