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Nathan Axvig* (s-naxvig1@math.unl.edu), 6501 Vine St. Apt. 104, Lincoln, NE 68505. *The Average Min-Sum Decoding Algorithm.*

The min-sum (MS) algorithm is an efficient means of decoding low-density parity-check codes; however, it may sometimes output vectors that are not codewords. In an effort to investigate these non-codeword outputs, we introduce average min-sum (AMS) decoding. For certain classes of codes, the output vectors of AMS appear to converge to rational points in the fundamental polytope of the parity-check matrix under consideration. This talk is based on joint work with Deanna Dreher, Katherine Morrison, Eric Psota, Lance C. Perez, and Judy L. Walker. (Received August 26, 2008)