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Wittawat Kositwattanarerk* (wkositw@clermson.edu), Department of Mathematical Sciences, Clemson University, Clemson, SC 29634, and **Gretchen L Matthews**. *On enumerating the pseudocodewords of a parity-check codes.*

Linear programming and message-passing iterative decoding algorithms are highly efficient and may correct errors even beyond the usual error-correcting capability of the code. However, they may output an illegitimate codeword called a pseudocodeword. In this talk, we demonstrate a one-to-one correspondence between pseudocodewords and integer points in a lifted fundamental cone. This allows enumeration of pseudocodewords via Barvinok's algorithm. In addition, irreducible pseudocodewords are found as a Hilbert basis for the lifted fundamental cone. (Received August 23, 2011)