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Trevor McGuire* (tmcgui1@lsu.edu). *A Combinatorial Algorithm for Generating Free Resolutions of Ideals with Binomial and Monomial Generators.*

Free resolutions of $S = k[x_1, \dots, x_n]$ -modules are widely studied. In the field of combinatorial commutative algebra, resolutions of S-ideals generated only by monomials or only by binomials have been given a combinatorial description in terms of simplicial complexes. In fact, simple algorithms have been given that generate these free resolutions. In this talk, we will describe a combinatorial algorithm that can generate a free resolution of an S-ideal of an S-ideal that is generated by both monomial and binomial terms. This algorithm is based on the newly defined Lattice Translated Buchberger Graph, which is a generalization of the Buchberger graph one uses to resolve a monomial S-ideal. (Received September 21, 2012)