3:15 PM Monday, July 21 in Merrick 1

Generalized Hamming Weights and the Algebraic Structure of Matroids

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In this talk, we explore the relationship between the generalized Hamming weights of a linear code and the structure of the symbolic powers of the Stanley-Reisner ideal of the matroid associated with the dual code. We extend this connection to arbitrary matroids, highlighting how generalized Hamming weights can be understood through the initial degrees of these symbolic powers. Our investigation reveals structural links between coding theory and combinatorial commutative algebra, providing new insights into related invariants such as the Waldschmidt constant, resurgence, and other properties of symbolic powers. This is joint work with Michael DiPasquale, Arvind Kumar, and Ştefan O. Tohăneanu.

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