## 1147-05-792

## Ryan C Gabrys\* (ryan.gabrys@gmail.com), 6314 Lake Melissa Dr, San Diego, CA 92119. Set-Codes with Small Intersections and Small Discrepancies.

We are concerned with the problem of designing large families of subsets over a common labeled ground set that have small pairwise intersections and the property that the maximum discrepancy of the label values within each of the sets is less than or equal to one. Our results, based on transversal designs, factorizations of packings and Latin rectangles, show that by jointly constructing the sets and labeling scheme, one can achieve optimal family sizes for many parameter choices. Probabilistic arguments akin to those used for pseudorandom generators lead to significantly suboptimal results when compared to the proposed combinatorial methods. The design problem considered is motivated by applications in molecular data storage and theoretical computer science. (Received January 28, 2019)