Sarah Anderson and Jeong-Hyun Kang*, Department of Mathematics, University of West Georgia, Carrollton, GA, and Hiren Maharaj. Codes with bounded distances, and their applications to distance graphs.

It has been studied in coding theory to find the maximum size of binary codes of length $n$ with minimum distance $d$ under Hamming distance. In this talk, we study binary codes when the distance has a restriction of maximum distance as well. Various upper bounds including an exponential upper bound have been established using a result of Kabanjanskii–Levenštein and Jung’s theorem in Combinatorial Geometry. We show applications of these coding theoretic results to a distance graph on $n$-dimensional integer grid to obtain various lower bounds on chromatic numbers. This is a joint work with S. Anderson and H. Maharaj. (Received September 24, 2012)