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Jason Williford* (jwillif1@uwyo.edu). *d-Geodetic Graphs*.

Bondy, Erdős and Fajtlowicz classified all graphs of diameter 2 with no 4-cycles in their paper “Graphs of diameter two with no 4-circuits”, showing that they are Moore graphs, polarity graphs of projective planes, or have a vertex adjacent to all others. We define a graph to be d -geodetic if it has diameter d , and there is at most one d -path between any pair of vertices. We call a d -geodetic graph ‘degenerate’ if it contains a vertex of eccentricity less than d . The theorem of Erdős et al. shows the non-degenerate 2-geodetic graphs are precisely Moore graphs and polarity graphs of planes.

In this talk, we discuss joint work with Michael Huntington to classify the non-degenerate d -geodetic graphs of diameters 3,4 and 5. (Received July 29, 2018)