The degree-diameter problem for circulant graphs of degree 8 and 9

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Abstract

This talk considers the degree-diameter problem for undirected circulant graphs. The focus is on extremal graphs of given (small) degree and arbitrary diameter. The published literature only covers graphs of up to degree 7. The approach used to establish the results for degree 6 and 7 has been extended successfully to degree 8 and 9. Candidate graphs are defined as functions of the diameter for both degree 8 and degree 9. They have been proven to be extremal for small diameters. They establish new lower bounds for all greater diameters, and are conjectured to be extremal. Finally some conjectures are made about solutions and upper bounds for circulant graphs of higher degree.