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**Sebastian M. Cioabă\*** ([scioaba@math.ucsd.edu](mailto:scioaba@math.ucsd.edu)), University of California, San Diego, Department of Mathematics, La Jolla, CA 92093-0112, **David A. Gregory** ([gregoryd@mast.queensu.ca](mailto:gregoryd@mast.queensu.ca)), Queen's University, Department of Mathematics, Kingston, ON K7L 3N6, Canada, and **Willem H. Haemers** ([haemers@uvt.nl](mailto:haemers@uvt.nl)), University of Tilburg, Department of Econometrics, and Operations Research, 5000 LE Tilburg, Netherlands. *Perfect matchings in regular graphs from eigenvalues.*

Let  $G$  be a  $k$ -regular graph of even order. We find a best upper bound on the third largest adjacency eigenvalue  $\lambda_3(G)$  that is sufficient to guarantee that  $G$  has a perfect matching. (Received August 06, 2007)