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We give lower bounds for the maximum size of a matching in an  $n$ -vertex  $l$ -edge-connected  $k$ -regular graph or multigraph, when  $k \geq 3$  and  $1 \leq l \leq k - 2$ . The bounds are sharp infinitely often, and we characterize when equality holds. This result implies results due to Henning and Yeo and due to West and O.

We also study the relationship between eigenvalues and the existence of certain subgraphs in regular graphs or multigraphs. We obtain a condition on an appropriate eigenvalue that yields a lower bound for the size of a maximum matching of an  $l$ -edge-connected  $k$ -regular graph or multigraph, when  $1 \leq l \leq k - 2$ . This result implies a result of Cioaba and O. (Received August 07, 2013)