

A CHARACTERIZATION OF STRONG REGULARITY OF INTERVAL MATRICES*

JIRI ROHN[†]

Abstract. As the main result of this paper it is proved that an interval matrix $[A_c - \Delta, A_c + \Delta]$ is strongly regular if and only if the matrix inequality $M(I - |I - RA_c| - |R|\Delta) \geq I$ has a solution, where M and R are real square matrices and M is nonnegative. Several consequences of this result are drawn.

Key words. Interval matrix, Strong regularity, Spectral radius, Matrix inequality, Solvability.

AMS subject classifications. 65G40.

*Received by the editors on November 24, 2009. Accepted for publication on November 5, 2010.
Handling Editor: Angelika Bunse-Gerstner.

[†]Institute of Computer Science, Czech Academy of Sciences, Prague, and School of Business Administration, Anglo-American University, Prague, Czech Republic (rohn@cs.cas.cz). This work was supported by the Czech Republic Grant Agency under grants 201/09/1957 and 201/08/J020, and by the Institutional Research Plan AV0Z10300504.