1099-47-301 **Konstantin A Makarov*** (makarovk@missouri.edu), Department of Mathematics, University of Missouri, Columbia, MO 65211, **Stephan Schmitz** (schmist@uni-mainz.de), Institut für Mathematik, Johannes Gutenberg-Universität Mainz, D-55099 Mainz, Germany, and **Albrecht Seelmann** (seelmann@mathematik.uni-mainz.de), Institut für Mathematik, Johannes Gutenberg-Universität Mainz, Mainz, D-55099. *Reducing graph subspaces and Riccati equations.* Preliminary report.

The problem of block diagonalization for diagonally dominant symmetric block operator matrices with self-adjoint diagonal entries is considered. We show that a reasonable block diagonalization with respect to a reducing graph subspace requires a related skew-symmetric operator to be a strong solution to the associated Riccati equation. Under mild additional regularity conditions, we also establish that this skew-symmetric operator is a strong solution to the Riccati equation if and only if the graph subspace is reducing for the given operator matrix. These regularity conditions are shown to be automatically fulfilled whenever the corresponding relative bound of the off-diagonal part is sufficiently small. (Received February 10, 2014)