1016-90-89 **Leonid Faybusovich*** (leonid.faybusovich.1@nd.edu), University of Notre Dame, Department of Mathematics, 255 Hurley Hall, Notre Dame, IN 46556. *Nonconvex problems and Symmetric relaxations.*

We discuss several classes of nonconvex optimization problems which admit relaxations by convex optimization problems involving symmetric cones. Two types of results are considered: exact relaxations based on rank estimates and inexact relaxations quality of which is estimated based on an abstract version of famous matrix cube theorem. A variety of new results is obtained. Most of them are for problems admitting relaxations involving cones of positive semidefinite quaternion Hermitian matrices which are realized as cones of structured Hermitian matrices with complex entries. Some applications are briefly discussed. (Received February 03, 2006)