1014-65-1670   **Sanjoy Kumar Brahma*** (`brahma@math.niu.edu`), 1400 West Lincoln Highway, Apartment : B8, DeKalb, IL 60115, and **Biswa Datta** (`dattab@math.niu.edu`), 2252 Kings Court, Geneva, IL 60134. *Numerical Solutions of Numerical Solutions of Robust and Minimum-Norm Quadratic Partial Eigenvalue Assignment Problems.* Preliminary report.

The quadratic partial inverse eigenvalue assignment problem consists in updating a quadratic pencil using feedback control such that a small number of unwanted eigenvalues in a quadratic pencil are reassigned to suitable locations leaving others unchanged. To deal with the sensitivity of the closed-loop eigenvalues the feedback matrices should be such that they are of minimum norm and the closed-loop eigenvector matrix is as well-conditioned as possible. Two new optimization based algorithms for such problems are proposed in this paper and their effectiveness are demonstrated with results of numerical experiments. Several distinct practical features make the algorithms readily applicable to control resonance in even very large practical structures. (Received September 28, 2005)