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Edwin M Behrens and **Johnny Guzman***, Brown University, Division of Applied Mathematics, 182 George St, Providence, RI 02912. *A new family of methods for the Reissner-Mindlin plate problem based on a system of first order equations.*

The Reissner-Mindlin plate problem is written as a system of first order equations and all the resulting variables are approximated. A hybrid form of the method is presented which allows one to eliminate all the variables locally and have a final system only involving the Lagrange multipliers which approximate the transverse displacement and rotation at the edges of the triangulation. Optimal estimates independent of the plate thickness are proved for the transverse displacement, rotation and bending moment. A post-processing technique is provided for the displacement variable and we show numerically that it converges faster than the original approximation. (Received December 31, 2009)