

# THE LEAST-SQUARES FINITE ELEMENT METHOD FOR LARGE DEFLECTION ANALYSIS OF PLATES

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A least-squares finite element method (LSFEM) for plane elasticity and plate bending problems was developed [1,2]. For plane elasticity the method is based on the first-order displacement-stress-rotation formulation. For thin-plate bending the method is based on the first-order deflection-slope-moment-shear force formulation. In the present work, these two formulations are combined to solve the large deflection problems of plates. This LSFEM can accommodate all kinds of conventional elements and can deal with incompressible materials.

## References

- [1] B.N. Jiang, and J. Wu, "The least-squares finite element method in elasticity--Part. I. Plane stress or strain with drilling degrees of freedom," *International Journal for Numerical Methods in Engineering*, V. 53, p. 621-636, 2002.
- [2] B.N. Jiang, "The least-squares finite element method in elasticity--Part. II. Bending of thin plates," *International Journal for Numerical Methods in Engineering*, v. 54, p. 1459-1475, 2002.