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Shuonan Wu  
**A Robust Iterative Method for a Class of New Mixed  
Discretization of Linear Elasticity**

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In this talk, we will first present a family of new mixed finite elements (in terms of the symmetric stress tensor and the displacement variables) for the linear elasticity in any spatial dimension. By using a hybridization process, namely introducing some Lagrangian multipliers to impose interelement continuity for stress, the solution of the discretized indefinite system is reduced to that of obtain a symmetric semi-positive-definite (SSPD) system. We then develop an overlapping Schwarz method to the resulting SSPD system and prove its uniform convergence with respect to both the mesh size and Poisson ratio. The new discretization (which gives a more accurate approximation for stress than displacement) together with the robust solver provide a new competitive approach for stress analysis in computational structure mechanics. Numerical tests are presented to validate the theoretical results.