

Stabilized mortar methods for interface problems

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Usually, mortaring of meshes across interfaces is performed by use of Lagrange multiplier techniques in order to enforce continuity of the solution. The multiplier space can not be chosen independently of the trace meshes adjacent to the interface if stability of the method is to be maintained. In this talk I will present three different approaches to avoiding this problem by introducing artificial but consistent stabilization. These methods have different characteristics: one requires a mesh to define the multiplier space, one allows for greater freedom in choosing multipliers (e.g., as global polynomials), and one formally does without multipliers altogether (Nitsche's method). Finally, I will give an outlook on different uses of Nitsche's method in computational mechanics.

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