

EMBEDDED INTERFACE METHODS

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ABSTRACT

In recent years there is considerable interest in numerical methods that approximate solutions of partial differential equations by embedding or immersing the boundary of a domain or internal interface in relatively simple meshes. Such element technology has been advanced for both classical finite element bases as well as emerging bases such as B-splines. The algorithmic developments are aimed at applications where interfaces or free surfaces play an important role, such as in fluid-structure interaction, phase transitions, crack propagation, and others. Embedded interface methods relax geometric restrictions in computational technology, often providing efficient and robust alternatives to meshing or remeshing when the geometry is complex or evolves in non-trivial ways, as well as accommodating trim surfaces which are ubiquitous in engineering CAD. The goal of this minisymposium is to bring together researchers in novel algorithmic, computational, or practical aspects of this area, as well as in relevant applications, to discuss their ongoing developments and results.