

Surface geometry approximation and vector-valued PDEs

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Short Description

In the context of the numerical solution of surface PDEs, the transition from scalar to vector-valued problems raises important new challenges. The numerical approaches developed for the scalar case are not directly applicable in the vector case due to additional geometric constraints. Here in fact, the coupling between the surface geometry and the solution is found to be strong, affecting the numerical discretization and analysis. Often higher order information on surface quantities, such as curvature or a normal vector field, is needed to obtain optimal convergence. Consequently, the discretization of the solution must be considered in combination with the reconstruction of the surface properties.

This minisymposium aims at bringing together these two points of view, opening a discussion between researchers employing different approaches for discretizing vector-valued surface PDEs with those developing methods for the reconstruction of surface information compatible with these approaches.