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# RECENT ADVANCES IN FINITE ELEMENT METHODS FOR COUPLED PROBLEMS IN INCOMPRESSIBLE FLUID DYNAMICS

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## ABSTRACT

The coupling of linear and nonlinear partial differential equations is a key ingredient of many important natural phenomena and industrial applications related to fluid dynamics. Examples include fluid-structure interactions, multiphase flows, magnetohydrodynamics, thermal convection driven flows with applications in geosciences, material science and energy technology. Thus, the applied mathematics and engineering communities have seen a continuous rising interest in the development and analysis of efficient and robust numerical methods for coupled problems in fluid dynamics. Among those techniques, particular attention has been given to finite elements methods (FEM) due to their applicability to a wide range of problems. The goal of this mini symposium is to provide a platform to researchers developing novel Finite Element techniques (e.g. CG, DG, HDG, stabilized FEM) for coupled problems in incompressible fluid dynamics. Focus is given to either the theoretical properties of the methods or their applications to physical problems.