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IFISS: A Matlab Toolbox for Modelling Incompressible Flow

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We give an overview of the IFISS (*Incompressible Flow Iterative Solution Software*) Package, a graphical Matlab package for the interactive numerical study of incompressible flow problems. It includes algorithms for discretization by mixed finite element methods and a posteriori error estimation of the computed solutions. The package can also be used as a computational laboratory for experimenting with state-of-the-art preconditioned iterative solvers for the discrete linear equation systems that arise in the modelling of incompressible flow. A unique feature of the package is its comprehensive nature; for each problem addressed, it enables the study of both discretization and iterative solution algorithms as well as the interaction between the two and the resulting effect on overall efficiency.