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RBF METHOD FOR NAVIER STOKES EQUATIONS

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ABSTRACT

The proposed study presents a mesh-less method for the solution of two dimensional steady state, viscous, incompressible flow problem (Navier Stokes equations). The Navier Stokes equations are formulated in terms of the stream function and its derivatives. The stream function is interpolated by global radial basis functions centered at some selected points inside the domain and on the boundary of the problem. relevant references. The amplitudes of the used radial basis functions are obtained by collocating the governing equations and their boundary conditions at the selected boundary and domain points.. The collocation process produces a system of nonlinear algebraic equations which are solved using an incremental-iterative procedure. The numerical examples show that the addition of the fundamental solution to the radial basis functions improves the accuracy, especially for cases involving high gradients