Superconvergence Analysis of the Mac scheme for Stokes problems

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This talk is concerned with a superconvergence analysis of MAC scheme for steady Stokes equations. We first derive MAC scheme from a staggered finite volume element method (FVEM) with a proper quadrature. Then by comparing the MAC to the corresponding FVEM, the superconvergence of the MAC scheme over non-uniform rectangular meshes is proved. As a byproduct, the optimal order L^2 error estimate has been also obtained