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ON THE DISCRETE SOLUTION OF THE GENERALIZED STOKES PROBLEM IN ONE TIME-STEP FOR TWO PHASE FLOW *

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Dedicated to Víctor Pereyra on the occasion of his 70th birthday

Abstract. In this paper, we demonstrate the existence, uniqueness, and uniform stability of the discrete solution obtained with the nonconforming Crouzeix-Raviart/P_0 finite element for a generalized Stokes problem of a two-phase flow in one time-step.

Key words. two-phase flow, Stokes problem, discrete solution, finite element

AMS subject classifications. 15A15, 15A09, 15A23

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