On the Numerical Solution of a Diffusion Equation Arising in Two-phase Fluid Flow

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Abstract

Many applied problems in fluid mechanics and mathematical biology were formulated as the mathematical model of partial differential equations. Fluid flow inside capillaries were also considered with mathematical models [1]-[3]. But it is known that due to the lack of some data and/or coefficients, many real-life problems are modeled as inverse problems [4]-[5]. In this paper, specific modeling of the fluid flow for an unknown pressure is modeled as a two-phase flow equation. The unknown pressure acting in the model can be identified by using the overdetermined condition. Difference schemes are constructed for obtaining approximate solutions of this inverse problem. Stability estimates for the solution of these difference schemes are established.

References

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