

NUMERICAL SIMULATIONS OF WATER ADSORPTION MODEL BY FINITE ELEMENT METHOD WITH ADAPTIVE MOVING MESH METHOD

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Abstract. A mathematical model of water adsorption phenomena is formulated by Aiki, Murase, Sato and Shirakawa in [4], and mathematical results are shown in [5], [6], and [7]. On the other hand, numerical simulations have been only given in [4] by experimental approximating technique without any sufficient mathematical proof. The numerical simulations gave the graph of the solution for water adsorption model drawing hysteresis-like loops under certain conditions. It is a suitable behavior with phenomenon point of view. In this paper, we configure a numerical scheme given by the finite element method with the adaptive moving mesh method, and we confirm the validity of the numerical results in [4].

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