

# **Abstract**

**Amr A. Mohamed Mohamed Hassan**

## **Simulation of Two Phase Flow in Porous Media using Computational Fluid Dynamics**

Two-phase flow and transport processes in porous media are involved in a wide variety of engineering applications, such as oil recovery and groundwater remediation. The 'Volume of Fluid' (VOF) method implemented in FLUENT has been used to model the immiscible two-phase flow through pore-scale model which takes one of the 2D micro-media images of realistic porous media prepared previously. The potential for using standard computational fluid-dynamics (CFD) methods also has been investigated to analyze and predict the effects of vibration on mobilization of trapped non-wetting fluid.