

## NUMERICAL MODELING AND SIMULATION OF COPPER OXIDE NANOFUIDS USED IN COMPACT HEAT EXCHANGERS

AMIR QASHQAEI & RAMIN GHASEMI ASL

Department of Mechanical Engineering, West Tehran Branch, Islamic Azad University, Tehran, Iran

### ABSTRACT

In this paper, a comparison of heat transfer and pressure drop characteristics of CuO/water nanofluids in a helically coiled heat exchanger held in horizontal and vertical positions is presented. Heat transfer of Nanofluid is a new environment, usually metallic nanoscale particles suspended in a base fluid composed. Do nanofluidics compared with conventional fluids have higher coefficients of thermal conductivity and displacing. However, due to the increased use of nanofluidics, sometimes leading to excessive pressure drop can be pumped. The theoretical study of this issue using nano-fluids in the heat exchanger tube and shell and tube heat exchangers are widely used in the industry are the purpose of the project is located.

**KEYWORDS:** Heat Exchangers, CuO/Water nanofluids, Internal Nusselt Number, Particle Volume Concentration