عنوان مقاله:

A CFD study on the convective heat transfer of Al2O3/Water nanofluids under laminar flow regime

محل انتشار:

هفتمین کنگره ملی مهندسی شیمی (سال: 1390)

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خلاصه مقاله:

This paper reports Computational Fluid Dynamics (CFD) investigations on the Nusselt number and heat transfer performance of Al2O3/Water nanofluids under laminar flow condition in circular tube submitted to a constant and uniform heat flux at the wall. A single-phase model is employedwith either constant or temperature dependent properties. The investigation is accomplished for size particles equal to 50 nm. Convective heat transfer coefficient for nanofluids is greater than that of the base liquid and heat transfer enhancement increases with the particle volumeconcentration. Higher heat transfer coefficients are detected in the case of temperature dependentsmodel and the heat transfer always improves, as Reynolds number increases. Moreover acomparison with the experimental data present in the literature is carried out and good conformity between the model predictions and the experimental data is achived

کلمات کلیدی:

Nanofluids, Nusselt number, heat transfer coefficient, single-phase model, constant and variable property

لینک ثابت مقاله در پایگاه سیویلیکا: