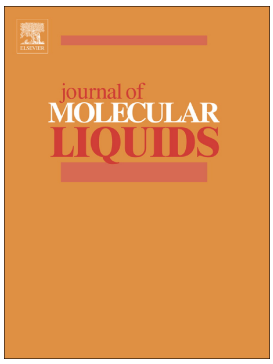

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Recent Developments in Magneto-hydrodynamic Fe_3O_4 Nanofluids for Different Molecular Applications: A Review Study

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Abstract:

In this review study, it is tried to collect all the recent studies in the magneto-hydrodynamic (MHD) nanofluids flow application using Fe_3O_4 nanoparticles. The studies are categorized by focusing more on seven different sections: Magnetic field effect, Friction and thermal (Heat transfer) effects, Viscosity and Physical properties, Thermal applications, Thermo-physcial studies, Works on synthesis and other applications. Also, the energy application of this type of nanofluid such as in microchannels, CO_2 storages, U-tubes, L shaped geometries in solar application channels, etc. are reviewed and their results were discussed. Although the studies had valuable separate outcomes, but approximately all of them confirmed that by increasing the Reynolds number and volume fraction, Nusselt number increased and friction factor decreased. Furthermore, the friction-factor is increased with increase of volume concentration in most applications.

Keywords: Fe_3O_4; Nanofluid; Thermal Application; Synthesis; Friction Factor.

Table of Contents

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