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Nanofluids and the Research Opportunities

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Nanofluids which are new heat transfer fluids (consist of nanoparticles and a conventional heat transfer fluid) have shown some new behaviors in thermal fluid systems. First, their effective thermal conductivity and heat capacity of them can be much more than those of the conductivity and heat capacity of the conventional heat transfer fluids. Secondly, magneto-rheological nanofluids (MRNF) can control the viscosity and heat transfer when they are in a proper magnetic field. On the negative side and in general, nanofluids have shown more effective viscosity in comparison to the base fluids. The idea is to find the optimum way to prepare them as well as the optimum range for each nanofluid to provide the maximum heat transfer performance. Consequently, they can significantly reduce the size and materials in the heat transfer applications. Therefore, investigation into the nanoparticles and nanofluid is important regarding material and energy management as well as environment issues. This presentation concerns on different issues and the opportunity of research on the lack of information in nanofluids area to be involved in different industrial applications.

Biography

Dr Sharifpur is a senior lecturers in the Department of Mechanical and Aeronautical Engineering at University of Pretoria (UP) as well as the establisher and responsible for Nanofluids Research Laboratory. He received a BE (Mechanical Engineering) degree from Shiraz University in Iran (one of the top 5 universities out of 2390 universities in Iran, which choosing the top students from national entrance exam). After that He completed a ME degree in Nuclear Engineering, and then received a full scholarship for PhD study from Eastern Mediterranean University. He was the only postgraduate student who received four out of four for the cumulative grade point average (CGPA) when he received his PhD.

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