

Special issue on the applications of nanofluids in thermal devices

Nanofluids are known as modified heat transfer fluids which are applicable in different thermal mediums. Due to improved thermo-physical properties of the nanofluids, utilizing them in thermal devices can remarkably enhance the performance. Nanofluids are able to modify different mechanisms of heat transfer including boiling, free convection and forced convection. Depending on the required applications, the type of solid nanostructures and the base fluid vary. In addition to the compositions of nanofluids, other factors such as concentration of solid phase and operating condition must be considered in order to reach the most favorable performance of thermal devices. In this regard, it is crucial to investigate the factors affecting performance of nanofluidic heat transfer devices. The present special issue focuses on the applications of nanofluids in thermal mediums. High quality numerical, experimental, review and analytical researches are invited to be submitted to this issue. The most interesting subjects-but are not limited to- for this special issues are as follows:

- Effect of using nanofluids on convective heat transfer.
- Applications of nanofluids in enhancement of single- and two-phase heat transfer.
- Impact of utilizing nanofluids on the thermal performance of various heat exchanger.
- Energy and exergy analysis of nanofluidic thermal devices.
- Applications of artificial intelligence in predicting the properties of nanofluids and performance of nanofluidic thermal devices.
- Performance optimization of nanofluidic thermal systems by considering economic and environmental criteria.
- Applications of nanofluids in renewable energy-based thermal systems such as solar collectors and the heat exchangers used in geothermal systems.

Keywords

- Nanofluids
- Thermal devices
- Energy and exergy analysis
- Intelligence methods

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Giulio Lorenzini received a Master's Degree in Nuclear Engineering at Alma Mater Studiorum-University of Bologna, Italy in 1994 with a "cum laude" evaluation. His Professional State Examination was awarded in 1995 with an evaluation equal to 120/120. In 1999, he obtained a Ph.D. in Nuclear Engineering. From 1996 to 2005, he was a researcher in "Fisica Tecnica Industriale" at Alma Mater Studiorum-University of Bologna. From 2005 to 2010, he was an Associate Professor of "Fisica Tecnica Industriale" at Alma Mater Studiorum-University of Bologna. From 2010 to today, he is a Full Professor of "Fisica Tecnica Ambientale" in the Department of Industrial Engineering of the University of Parma, Italy.