

Call for Papers

The Open Thermodynamics Journal

Special Issue On:

Multiphase heat transfer in thermal management of electronic cooling and packaging

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Aims & Scope:

Demands for high heat flux removal from electronic devices have made small scale heat transfer and thermal management attractive in many emerging industries. Heat dissipation in active and passive electronic components is one of the most important criteria for design of electronic systems. In most of applications this heat is not desirable and affects the performance, reliability and life time of different components in an integrated electronic unit. Temperature dependency of physical properties for active electronic components also leads to some important drawbacks under high heat flux such as forward drop, gain and leakage in these components. Multiphase flow and heat transfer is one of the most promising methods in electronic cooling equipment. It has the advantages of the lowest pumping power, the highest efficiency and a high heat dissipation rate; however multiphase flow systems are composed of many complex thermo-hydraulic phenomena that are still not completely understood. This special issue will consider the analytical, numerical and experimental studies and recent advancements in application of multiphase flow, thermal management and heat transfer enhancement in electronic cooling and packaging.

Keywords: Multiphase flow, Heat Transfer, Electronic cooling systems, Thermal Management.

Tentative Subtopics:

The special issue encourages researchers worldwide to submit their most recent developments and ideas related to multiphase flow heat transfer in electronic cooling and packaging. Potential topics include, but are not limited to:

- Phase change materials and their application in electronic cooling
- Numerical simulation of multiphase flow heat transfer in thermo-electrical systems
- Boiling heat transfer for high heat flux removal from electronic devices
- Surface cooling using evaporation process for electronic cooling applications
- Active and passive heat transfer enhancement of electro-mechanical systems
- Applications of nanofluids in heat transfer enhancement of electronic cooling systems
- Micro channels and their applications in electronic cooling and packaging
- Application of microstructures heat transfer enhancement for electronic equipment cooling
- Application of micro and miniature heat pipes in electronic component coolers
- Evaluation of cooling systems for electronic equipment using experimental and numerical data.
- Heat transfer enhancement by pulsating and reciprocating flow loops.
- Passive and natural heat transfer and application of thermosyphon loop in electronic cooling.

TOTHERJ seeks high-quality research articles and review papers for this special issue. Manuscripts are welcome when written according to the style of the TOTHERJ journal, which is available at the website on <http://www.benthamopen.com/totherj>.

The papers will be initially screened by the special issue editors and then send out for single blind peer review in accordance with the procedures of TOTHERJ. Authors are encouraged to submit high-quality

publications that have neither appeared in nor are under consideration by other journals. Manuscripts may be submitted by E-mail at eghas001@fiu.edu or mirgang@nit.ac.ir or bararnia@gwmail.gwu.edu or ssole016@fiu.edu .

Important Dates:

Submission of manuscripts: March 31, 2015

Acceptance/rejection/revision notification: May 15, 2015

Revised manuscripts due: June 01, 2015