

Name: Ravi Kandasamy

Education:

Bachelor of Engineering in Mechanical Engineering
University of Madras, Tamilnadu, India, 1985-1989

Master of Engineering in Heat Transfer and Fluid Flow
Regional Engineering College, Trichy, Tamilnadu, India, 1989-1990

Research Scholar in Heat Transfer and Thermal Power Laboratory
Indian Institute of Technology, Madras, India, January 1991 – June 1992

Master of Engineering in National University of Singapore, 2003-2006

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Work Experience:

Research Scientist/Engineer: Indian Space Research Organization, India, 1992-1997
Area: CFD & Heat Transfer simulation studies for launch vehicle applications.

Senior Engineer: ASM Technology (S) Pte. Ltd., Singapore, 1997 – 2000
Area: CFD and Heat transfer simulation and measurement studies on Thermal Management of Electronic Cooling Systems and Mold flow simulation studies.

Principal Engineer: Agilent Technologies (S) Pte. Ltd, Singapore, 2000 onwards
Area: Electronics thermal management cooling of package, board and System level studies. CFD Simulation, Measurements using Infrared Thermal Imaging.

Research Area:

Transient Simulation & Experimental Studies, Computational Fluid Dynamics, Electronics Cooling, Heat transfer, Phase Change Materials, Hybrid Cooling, Finite Element Method.

Research Project

Title: A transient numerical and experimental thermal characteristics of novel PCM based Hybrid Thermal Management Systems.

Objective:

- Numerical and experimental studies on PCM-based thermal management of packages, boards and system level applications.
- Numerical heat transfer characteristics study within a PCM container subjected to a range of steady and transient thermal boundary conditions. Various transient heat loads to determine their heat storage characteristics.
- Investigating the use of PCMs for active or passive electronic cooling applications at different power levels. Selection of different PCMs and defining appropriate



criteria on geometric design. Different PCMs including mixtures as well as PCMs separated from each other will be tested.

- Understanding of melting and freezing process & free convection currents during the melting process. Free convective heat transfer is affected by the orientation and geometry of the PCM container. Numerical computation on rates of heat storage and heat discharge during the cooling process.
- To investigate PCMs field inside an aluminum matrix heat sinks for transient applications. Use of infra-red thermo-vision imaging for the temperature field.

Started: 04/2003,

Expected date of completion: 12/2005

Publications:

1. Penalty Finite Element Method for Transient Free Convective Laminar Flow, Springer-verlag, Lecture notes on Physics, (1995).
2. Transient Natural Convection in a Cylindrical Annulus', *Int. Journal of Thermophysics and Heat Transfer* (1997).
3. CAE modeling for ultra fine pitched IC's, *Solid State Technology*, (1999).
4. Prediction of Natural Convection in a differentially heated square Cavity at high Rayleigh numbers, 2nd ISHMT-ASME Heat and Mass Transfer Conference, India, (1995).
5. Prediction of Natural Convection in a Cylindrical Annulus, 47th AGM of the Aeronautical Society of India, Indian Institute of Technology, Madras, (1996).
6. Design of cooling tower by the Finite Element Method, 4th International Symposium on Natural Draught cooling towers, Kaiserslautern, Germany, (1996).
7. Application of Computational Fluid Dynamics for Thermal Management of Electronics and Components and Systems, SEMICON Technical Symposium, Test, Assembly & Packaging, Singapore, (1998).
8. Transient Thermal Analysis of Pre-heater Block Design using ANSYS, 2nd ANSYS Conference, Singapore, (1998).
9. Design of Post Mold Cure Oven Using CAE Simulation Tools using FLOTHERM, SEMICON Technical Symposium, Test, Assembly & Packaging, Singapore (1999).
10. IC encapsulation of CSP package using CAE simulation tools, C-MOLD 2000 International Conference, Taiwan (2000).

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