

Dr. V. KUMARESAN

Assistant Professor, Institute for Energy Studies,
Department of Mechanical Engineering, Anna University,
Chennai – 600 025, India

Phone: +91 44 2235 7603; Fax: +91 44 2235 1991

kumaresanvm1973@gmail.com, kumaresanv@annauniv.edu



Dr. V. Kumaresan received his Ph.D. degree in the field of Nanoparticle – enhanced Phase Change Material for Thermal energy storage applications from Anna University Chennai, India. He is recipient of Raman Fellowship for his Post-Doctoral Research in the field of heat transfer enhancement using Lattice Frame Material based heat exchanger for air cooling / heating applications at School of Mechanical Engineering, Purdue University, West Lafayette, USA. He has about 18 years of teaching experience at various levels and presently working as Assistant Professor, Institute for Energy Studies, College of Engineering Guindy, Anna University. His areas of interest include Energy Storage, Nanoparticle enhanced PCM for Thermal Energy Storage and Solar Thermal application, Heat transfer in Nanofluids and Compact Heat Exchangers. He has published sixteen research papers in the journals of international repute and he is presently supervising 10 research scholars.

He has significantly contributed in developing a product for 'Effective thermal management system for solid state laser devices using thermal energy storage technology' to DRDO, New Delhi. He is recipient of the 'Best Innovative Research Award 2013' awarded by Anna University, Chennai and received the best poster award in International Conference on Functional Materials for defense (ICFMD – 2012) jointly organized by defense Institute of Advanced Technology (DIAT, India), Naval Post graduate School (NPS, USA), Office of Naval Research (Global, USA). He is a member of Indian Society of Heating Refrigeration and Air conditioning Engineers (ISHRAE) and Indian Society for Heat and Mass Transfer (ISHMT).

EDUCATION

- ❖ Bachelor of Engineering (Mechanical Engineering) from Madurai Kamaraj University, 1994
- ❖ Master of Engineering (Thermal Engineering) from Madurai Kamaraj University, 1996
- ❖ Doctorate in Heat transfer characteristics of Nanoparticle enhanced PCM and Secondary Refrigerant Nanofluid for Cooling / Heating Applications, Anna University, 2012.
- ❖ Post Doctoral Research work in the field of Lattice Frame Material based heat exchanger at School of Mechanical Engineering, Purdue University, West Lafayette, USA during 2014-15 under Raman Fellowship.

PROFESSIONAL EXPERIENCE

- ❖ 18 Years of experience in Teaching, Research, and Consultancy in the field of Heat Transfer, Thermal Storage and Heat Exchanger.

S. No.	Position & Organisation	Nature of Job	Period
1	Assistant Professor, Department of Mechanical Engineering, Anna University, Chennai 25.	Teaching, Research & Consultancy	Oct 09 - Till Date
2	Assistant Professor Velammal Engineering College, Chennai 66	Teaching & Research	June 07 - Oct 09
3.	Lecturer Mohamed Sathak Engineering College, Kilakarai 623 806	Teaching & Administration	July 97 – May 07

AREA OF SPECIALIZATION

Energy Storage, Nanoparticle Enhanced Phase Change Materials, Heat transfer, Nanofluids, Cool Thermal Energy Storage, Solar thermal applications

SPONSORED R & D PROJECTS

S. No	Title	Sponsoring Agency	Period	Amount (In Lakhs)	Achievements
1	Effective thermal management system for solid state laser devices using thermal energy storage technology	Defence Research and Development organisation	2012 - 13	10.0	Developed a Thermal Management Unit (1.5 kW) for High Power Solid state Laser Device
2	Performance enhancement of solar water heater integrated with latent heat thermal storage system using nano-enhanced phase change materials	Indo - UK Joint Project, funded by UGC- UKERI, New Delhi	2014 - 16 (ongoing)	11.5	Ongoing
3	Role of nanotechnology in augmenting the thermal performance of a solar collector system integrated with PCM based thermal energy storage system for space cooling applications	SERI, DST	2015 - 17	59.01	Ongoing

Consultancy Projects

S. No	Title	Sponsoring Agency	Period	Amount
1	Energy Audit in Fishing Harbor	Chennai Port Trust	2015(ongoing)	Rs. 2,50,000

AWARDS

- ❖ Recipient of 'Raman Fellowship' for doing Post Doctoral Research in USA (2014-15).
- ❖ Recipient of the 'Best Innovative Research Award 2013' awarded by Anna University, Chennai.
- ❖ Recipient the best poster award in 1st International Conference on Functional Materials for defense (ICFMD – 2012) jointly organized by defense Institute of Advanced Technology (DIAT, India), Naval Post graduate School (NPS,USA), Office of Naval Research (Global, USA)

LIST OF PUBLICATIONS

1. **Vellaisamy Kumaresan.**, Ramalingam Velraj and Sarit K. Das. "The effect of carbon nanotubes in enhancing thermal transport properties of PCM during solidification", ***Heat Mass Transfer***, Vol. 48, No. 8, pp.1345-1355, **2012**.
2. **Kumaresan, V** and Velraj, R. "Experimental investigations of the thermo - physical properties of water – ethylene glycol mixture based CNT nanofluids", ***ThermochimicaActa***, Vol. 545, No. 10, pp. 180-186, **2012**.
3. **Kumaresan, V.**,Mohaideen Abdul Khader, S., Karthikeyan, S. and Velraj, R. "Convective heat transfer characteristics of CNT nanofluids in a tubular heat exchanger of various lengths for energy efficient cooling/heating system", ***International Journal of Heat and Mass Transfer***, Vol. 60, pp. 413-421, **2013**.

4. **Kumaresan, V.**, Velraj, R. and Das, S. K. “Convective heat transfer characteristics of secondary refrigerant based CNT nanofluids in a tubular heat exchanger”, *International Journal of Refrigeration*, Vol. 35, No. 18, pp. 2284-2296, **2012**.
5. **Kumaresan, V.**, Velraj, R., Maitreyee Nanda and Maini, A. K. “Phase Change Material based Nanofluids for Heat Transfer Enhancement in Latent Heat Thermal Energy Storage System”, *International Journal of Green Nanotechnology*, DOI: 10.1080/19430892.2012.738966, 2012.
6. **Kumaresan, V.**, Chandrasekaran, P., Velraj, R., Maitreyee Nanda and Maini, A.K. Role of PCM based nanofluids for energy efficient cool thermal storage system”, *International Journal of Refrigeration*, <http://dx.doi.org/10.1016/j.ijrefrig.2013.04.010>, 2013.
7. Karthikeyan, S., Ravikumar Solomon, G., **Kumaresan, V.** and Velraj, R. “Parametric studies on packed bed storage unit filled with PCM encapsulated spherical containers for low temperature air heating applications” Revised and submitted to **Energy Conversion and Management** for publication.
8. Chandrasekaran, P., Cheralathan, M., **Kumaresan, V.**, Velraj, R. “Solidification behavior of water based nanofluid phase change material with a nucleating agent for cool thermal storage system” submitted for publication in *International Journal of Refrigeration*.
9. **Kumaresan, V.**, Velraj, R., Maitreyee Nanda and Maini, A. K. “Phase Change Material Based Nanofluids for Heat transfer Enhancement in Latent Heat Thermal Energy Storage System”, Proceeding of ICFMD – 1stInternational Conference on Functional Materials for Defence, **2012**, Pune, India.
10. **Kumaresan, V.**, Velraj, R., Chandrasekaran, P., Maitreyee Nanda and Maini, A. K. “Role of PCM based nanofluids for energy efficient Thermal storage in Electronic Cooling system”, Accepted for oral presentation in 48th AIAA / ASME

/SAE/ASEE joint propulsion conference & Exhibit and 10th International Energy Conversion Engineering conference, **2012**, Atlanta, USA.

11. Chandrasekaran, P., **Kumaresan, V.**, Cheralathan, M. and Velraj, R. "Effective method of using PCM encapsulated spherical container for short duration charging and discharging applications" Proceeding of the Innostock 2012 – 12th International Conference on Energy Storage, **2012**, Lleida, Spain.
12. **Kumaresan, V.**, Chandrasekaran, P., Cheralathan, M. and Velraj, R. "Experimental investigation on solidification behavior of water based CNT nanofluids for cool thermal storage system" Proceedings of Nanotech **2013** conference, Washington DC, U.S.A.
13. **Kumaresan, V.**, Derick, A., Karthick Sabapathy, A., Senthil Kumar, G., " Enhancing the performance of a domestic refrigerator using thermal energy storage system", accepted for oral presentation in 11th International ISHMT-ASME Heat and Mass Transfer Conference **2013**, organized by IIT Kharagpur, India.
14. J Ganeshkumar, D Kathirkaman, K Raja, **V Kumaresan**, R Velraj. "Experimental study on density, thermal conductivity, specific heat and viscosity of water-ethylene glycol mixture dispersed with carbon nanotubes" Thermal Science, **2015**.
15. A Gurubalan, **V Kumaresan**, D Sangeetha, R Velraj, " Development of a Nanofibrous Membrane based Absorber Suitable for Vapour Absorption Refrigeration System" accepted for oral presentation in International Conference on Polygeneration **2015**, organized by Anna University, Chennai.
16. P Karthik, **V Kumaresan**, R Velraj, " Fanning friction (f) and Colburn (j) factors of a louvered fin and flat tube compact heat exchanger " accepted for publication in Thermal Science.