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Date of Birth: May 15, 1986

Nationality: India

Marital Status: Married (2 children)



EDUCATION

- 2010 – 2013 The University of Tokyo, Japan
Doctor of Engineering
Department of Mechanical Engineering
Advisor: *Distinguished Prof. Shigeo Maruyama*
- 2008 – 2010 Eindhoven University of Technology, The Netherlands
Master of Science
Thermofluids Engineering, Energy Technology,
Department of Mechanical Engineering
Advisor: *Prof. Anton Van Steenhoven*
- 2003 – 2007 College of Engineering, Guindy
Anna University, India
Bachelor of Mechanical Engineering

PROFESSIONAL EXPERIENCE

- 2020 - Present Principal Scientist (Associate professor-non tenure)
Department of Mechanical Engineering
The University of Tokyo, Hongo Campus
Bunkyo-ku, Tokyo, Japan
- 2016 - 2020 Assistant Professor
International Institute of Carbon-Neutral Energy Research (WPI-I²CNER)
Thermal Science and Engineering Division
Kyushu University
Fukuoka, Japan
- 2015 - 2016 Assistant Professor
School of Engineering
Indian Institute of Technology, Mandi
Himachal Pradesh, India
- 2013 - 2015 JSPS Post-Doctoral Researcher
Department of Mechanical Engineering
Kyushu University, Fukuoka, Japan
Host: *Prof. Masamichi Kohno*

2007 - 2008 Application Engineer
Emerson Process Management
Fisher Control Valves Division, Chennai, India

INTERNATIONAL VISITS

2017 - 2018 Visiting Lecturer
Department of Chemical Engineering
The University of Edinburgh, Scotland
United Kingdom
Host: *Prof. Khellil Sefiane*

2011 Visiting Graduate Student
Department of Mechanical Engineering
Stanford University, USA
Host: *Prof. Kenneth Goodson*

ACHIEVEMENTS

2013 Post-Doctoral Fellowship from Japan Society of Promotion of Science

2010 **Monbukagakusho” (MEXT)** fellowship from Japanese Government for the
Doctoral studies at The University of Tokyo, Japan

2008 Recipient of “**Henk Bodt**” Scholarship for the Master’s program at
Eindhoven University of Technology, The Netherlands

2008 Recipient of “**Royal Dutch Shell**” – “Personal Development Award” for
Excellence in academics and leadership skills

INTERNSHIPS

2009 Measurement of heat transfer coefficient of R218/R116 blend in cooling pipes
Cooling and Ventilation Division, **CERN Particle Physics Laboratory**,
European Organization for Nuclear Research, Geneva, Switzerland.

2008 – 2009 Three dimensional particle tracking velocimetry in time periodic viscous
laminar flow, Department of Applied Physics, Fluid Dynamics Division,
Eindhoven University of Technology, The Netherlands.

2008 Flow field investigation in a model 1.5 stage rotor-stator disk cavity using
particle image velocimetry, Department of Mechanical Engineering, Arizona
State University, USA.

SCIENTIFIC PUBLICATIONS AND CONFERENCES

PEER REVIEWED JOURNALS

1. S. Ghosh, S. Harish, M. Ohtaki, B.B. Saha, Thermoelectric figure of merit enhancement in cement composites with graphene and transition metal oxides, *Materials Today Energy*, Volume 18, 2020, pp 100492. [Journal Impact Factor – 5.604]
2. T. Balaji, C. Selvam, D. M. Lal, S. Harish, Enhanced heat transport behavior of micro-channel heat sinks with graphene based nanofluids, *International communications in Heat and Mass Transfer*, Volume 117, 2020, pp 104716. [Journal Impact Factor – 3.971]
3. V.G.S. Veerakumar, B.P. Shanmugavel, R. Pasakaramoorthy, S. Harish, The influence of graphene nanoplatelets on the tensile and impact behavior of glass fiber reinforced polymer composites, *Journal of Materials Engineering and Performance*, Volume 30, 2021, pp 596-609. [Journal Impact Factor – 1.652]
4. M. Sivashankar, C. Selvam, S. Manikandan, S. Harish, Performance improvement in concentrated photovoltaics using nano-enhanced phase change materials with graphene nanoplatelets, *Energy*, Volume 208, 2019, pp 118408. [Journal Impact Factor – 5.537]
5. G.V. Vighneswaran, B.P. Shanmugavel, R. Pasakaramoorthy, S. Harish, Tensile, impact and mode-1 behavior of glass fiber reinforced polymer composite modified by graphene nanoplatelets, *Archives of Civil and Mechanical Engineering*, Volume 20, Issue 3, 2020, pp 1-15. [Journal Impact Factor – 3.672]
6. H. Watanabe, S. Harish, Selected papers from the 5th International Conference on Polygeneration (ICP 2019), *Heat Transfer Engineering*, pp 1-2, 2020. [Journal Impact Factor – 1.693]
7. S. Ghosh, S.S. Withanage, B. Chamlagain, S.I. Khondaker, S. Harish, B.B. Saha, Low pressure sulfurization and characterization of multi-layer MoS₂ for potential applications in supercapacitors, *Energy*, Volume 203, 2020, pp 117918. [Journal Impact Factor – 5.537]

8. S. Ghosh, **S. Harish**, M. Ohtaki, B.B. Saha, Enhanced figure of merit of cement composites with graphene and ZnO nanoinclusions for efficient energy harvesting in buildings, *Energy*, Volume 198, 2020, pp 117396. [**Journal Impact Factor – 5.537**]
9. M.L.Palash, I. Jahan, T. H. Rupam, **S. Harish**, B.B. Saha, Novel technique for improving the water adsorption isotherms of metal-organic frameworks for performance enhancement of adsorption driven chillers, *Inorganica Chimica Acta*, Volume 501, 2020, pp 119313. [**Journal Impact Factor – 2.433**]
10. S. Ghosh, **S. Harish**, K.A. Rocky, M. Ohtaki, B.B. Saha, Graphene enhanced thermoelectric properties of cement based composites for building energy harvesting, *Energy and Buildings*, Volume 202, 2019, pp 109419. [**Journal Impact Factor – 4.495**]
11. R. Prabakaran, S. Sidney, D. Mohan lal, C. Selvam, **S. Harish**, Solidification of graphene assisted phase change nanocomposites inside a sphere for cold storage applications, *Energies*, Volume 12, Issue 18, 2019, pp 3473. [**Journal Impact Factor – 2.676**]
12. C. Selvam, S. Manikandan, S.C. Kaushik, R. Lamba, **S. Harish**, Transient Performance of a Peltier Super Cooler under Varied Electric Pulse Conditions with Phase Change Material, *Energy Conversion and Management*, Volume 198, 2019, pp 111822. [**Journal Impact Factor – 7.181**]
13. R. Prabakaran, J.P. Naveen Kumar, D. Mohan lal, C. Selvam, **S. Harish**, Constrained melting of graphene based phase change nanocomposites inside a sphere, *Journal of Thermal Analysis and Calorimetry*, Volume 139, 2020, pp 941-952. [**Journal Impact Factor – 2.471**]
14. S. Sidney, D. Mohan lal, C. Selvam, **S. Harish** Experimental investigation of freezing and melting characteristics of graphene based phase change nanocomposites for cold thermal energy storage applications, *Applied Sciences*, Volume 9, Issue 6, 2019, pp 1099. [**Journal Impact Factor – 2.217**]
15. M.L.Palash, S. Mitra, **S. Harish**, K.Thu, B.B. Saha, An approach for quantitative analysis of pore size distribution of silica gel using atomic force microscopy, *International Journal of Refrigeration*, Volume 105, Issue 6, 2019, pp 72-79. [**Journal Impact Factor – 3.177**]

16. A.Pal, A. Kondor, S. Mitra, K.Thu, **S. Harish**, B.B. Saha, On surface energy and acid-base properties of highly porous parent and surface treated activated carbons using inverse gas chromatography, *Journal of Industrial and Engineering Chemistry*, Volume 69, 2019, pp 432 - 443. [**Journal Impact Factor – 4.978**]
17. T. Josyula, Z. Wang, A. Askounis, D. Orejon, **S. Harish**, Y. Takata, P.S. Mahapatra, A. Pattamatta, Evaporation kinetics of pure water drops: thermal patterns, Marangoni flow and interfacial temperature difference, *Physical Review E*, Volume 98, Issue 5, 2018, pp 052804-1-12. [**Journal Impact Factor – 2.353**]
18. V. Sharma, D. Orejon, Y. Takata, V. Krishnan, **S. Harish**, Gladiolus Dalenii based bioinspired structured surfaces for water vapor condensation and fog harvesting, *ACS Sustainable Chemistry & Engineering*, Volume 6, Issue 5, 2018, pp 6981 - 6993. [**Journal Impact Factor – 6.970**]
19. M. Ankita, **S. Harish**, A. Halder, Role of Nitrogen Precursor on the Activity Descriptor towards Oxygen Reduction Reaction in Iron based Catalysts, *Chemistry Select*, Volume 3, Issue 23, 2018, pp 6542 - 6550. [**Journal Impact Factor – 1.716**]
20. C. Selvam, D. Mohan lal, **S. Harish**, Convective heat transfer behaviour of water-ethylene glycol-mixture with silver nanoparticles under laminar flow conditions, *Journal of Mechanical Science and Technology*, Volume 32, Issue 5, 2018, pp 2191 - 2199. [**Journal Impact Factor – 1.221**]
21. P.M. Sivaraman, **S. Harish**, M. Premalatha, A. Arunagiri, Performance analysis of solar chimney using mathematical and experimental approach, *International Journal of Energy Research*, Volume 42, Issue 7, 2018, pp 2373 - 2385. [**Journal Impact Factor – 3.343**]
22. C. Selvam, R. Solaimalai raja, D. Mohan lal, **S. Harish**, Overall heat transfer coefficient improvement of an automobile radiator with graphene based suspensions, *International Journal of Heat and Mass Transfer*, Volume 115 (part B), 2017, pp 580 - 588. [**Journal Impact Factor – 4.346**]

23. N. Das, Y. Takata, M. Kohno, **S. Harish**, Enhanced melting behavior of carbon based phase change nanocomposites in horizontally oriented latent heat thermal energy storage system, *Applied Thermal Engineering*, Volume 125, 2017, pp 880 - 890. [**Journal Impact Factor – 4.026**]
24. N. Das, Y. Takata, M. Kohno, **S. Harish**, Effect of carbon nano inclusion dimensionality on the melting of phase change nanocomposites in vertical shell-tube thermal energy storage unit, *International Journal of Heat and Mass Transfer*, Volume 113, 2017, pp 423 - 431. [**Journal Impact Factor – 4.346**]
25. C. Selvam, D. Mohan lal, **S. Harish**, Enhanced heat transfer performance of an automobile radiator with graphene based suspensions, *Applied Thermal Engineering*, Volume 123, 2017, pp 50 - 60. [**Journal Impact Factor – 4.026**]
26. C. Selvam, D. Mohan lal, **S. Harish**, Thermal conductivity and specific heat capacity of water-ethylene glycol mixture based nanofluids with graphene nanoplatelets, *Journal of Thermal Analysis and Calorimetry*, Volume 129, Issue 2, 2017, pp 947-955. [**Journal Impact Factor – 2.471**]
27. C. Selvam, **S. Harish**, D. Mohan lal, Effective thermal conductivity and rheological characteristics of ethylene-glycol based nanofluids with single-walled carbon nanohorn inclusions, *Fullerenes, Nanotubes and Carbon Nanostructures*, Volume 25, Issue 2, 2017, pp 86-93. [**Journal Impact Factor – 1.411**]
28. **S. Harish**, D. Orejon, Y. Takata, M. Kohno, Enhanced Thermal Conductivity of Phase Change Nano composite in Solid and Liquid State with Various Carbon Nano Inclusions, *Applied Thermal Engineering*, Volume 114, 2017, pp 1240 - 1246. [**Journal Impact Factor – 4.026**]
29. C. Selvam, E.C. Muhammed Irshad, D. Mohan lal, **S. Harish**, Erratum to Convective heat transfer coefficient and pressure drop of water-ethylene glycol mixture with graphene nanoplatelets, *Experimental Thermal and Fluid Science*, Volume 81, 2017, pp 67-76. [**Journal Impact Factor – 3.493**]

30. C. Selvam, D. Mohan lal, **S. Harish**, Thermal conductivity enhancement of water and ethylene-glycol with graphene nanoplatelets, *Thermochimica Acta*, Volume 642, 2016, pp 32-38. **[Journal Impact Factor – 2.251]**
31. C. Selvam, E.C. Muhammed Irshad, D. Mohan lal, **S. Harish**, Convective heat transfer coefficient and pressure drop of water-ethylene glycol mixture with graphene nanoplatelets, *Experimental Thermal and Fluid Science*, Volume 80, 2017, pp 67-76. **[Journal Impact Factor – 3.493]**
32. N. Das, Y. Takata, M. Kohno, **S. Harish**, Melting of graphene based phase change nanocomposite in vertical latent heat thermal energy storage unit, *Applied Thermal Engineering*, Volume 107, 2016, pp 101-113. **[Journal Impact Factor – 4.026]**
33. C. Selvam, E.C. Muhammed Irshad, D. Mohan lal, **S. Harish**, Convective heat transfer characteristics of water-ethylene glycol mixture with silver nanoparticles, *Experimental Thermal and Fluid Science*, Volume 77, 2016, pp 188-196. **[Journal Impact Factor – 3.493]**
34. C. Selvam, D. Mohan lal, **S. Harish**, Thermophysical properties of ethylene glycol-water mixture containing silver nanoparticles, *Journal of Mechanical Science and Technology*, Volume 30, Issue 3, 2016, pp 1271-1279. **[Journal Impact Factor – 1.221]**
35. **S. Harish**, D. Orejon, Y. Takata, M. Kohno, Thermal Conductivity Enhancement of Lauric Acid Phase Change Nanocomposite with Graphene Nanoplatelets, *Applied Thermal Engineering*, Volume 80, 2015, pp 205-211. **[Journal Impact Factor –3.771]**
36. **S. Harish**, D. Orejon, Y. Takata, M. Kohno, Thermal Conductivity Enhancement of Lauric Acid Phase Change Nanocomposite in Solid and Liquid State with Single-Walled Carbon Nanohorn inclusions, *Thermochimica Acta*, Volume 600, 2015, pp 1-6. **[Journal Impact Factor – 2.251]**
37. **S. Harish**, M. Tabara, Y. Ikoma, Z. Horita, Y. Takata, D.G. Cahill, M. Kohno, Thermal Conductivity Reduction of Crystalline Silicon by High Pressure Torsion, *Nanoscale Research Letters*, Volume 9, Issue 1, 2014, pp 1-6. **[Journal Impact Factor – 3.125]**

38. S.N. Schiffres, **S. Harish**, S. Maruyama, J. Shiomi, J.A. Malen, Correction to Tunable electrical and thermal transport in ice-templated multilayer graphene nanocomposites through freezing control, *ACS Nano*, Volume 8, Issue 5, 2014, pp 5365. [**Journal Impact Factor – 13.903**]
39. S.N. Schiffres, **S. Harish**,* S. Maruyama, J. Shiomi, J.A. Malen, Tunable electrical and thermal transport in ice-templated multilayer graphene nanocomposites through freezing control, *ACS Nano*, Volume 7, Issue 12, 2013, pp 11183-11189. **Joint first author* [**Journal Impact Factor - 13.903**]
40. **S. Harish**, K. Ishikawa, S. Chiashi, J. Shiomi, S. Maruyama, Anomalous thermal conduction characteristics of phase change nanocomposites with single walled carbon nanotube inclusions, *Journal of Physical Chemistry C*, Volume 117, Issue 29, 2013, pp 15409-15413. [**Journal Impact Factor – 4.309**]
41. R. Xiang, B. Hou, E. Einarsson, P. Zhao, **S. Harish**, K. Morimoto, Y. Miyauchi, S. Chiashi, Z. Tang, S. Maruyama, Carbon atoms in ethanol do not contribute equally to formation of single-walled carbon nanotubes, *ACS Nano*, Volume 7, Issue 4, 2013, pp 3095-3103. [**Journal Impact Factor - 13.903**]
42. **S. Harish**, K. Ishikawa, E. Einarsson, S. Aikawa, S. Chiashi, J. Shiomi, S. Maruyama, Enhanced thermal conductivity of ethylene glycol with single walled carbon nanotube inclusions, *International Journal of Heat and Mass Transfer*, Volume 55, Issue 13-14, 2012, pp 3885-3890. [**Journal Impact Factor – 4.346**]
43. **S. Harish**, K. Ishikawa, E. Einarsson, S. Aikawa, T. Inoue, P. Zhao, M. Watanabe, S. Chiashi, J. Shiomi, S. Maruyama, Temperature dependent thermal conductivity increase of aqueous nanofluid with single walled carbon nanotube inclusion, *Materials Express*, Volume 2, Issue 3, 2012, pp 213-223. [**Journal Impact Factor -1.465**]
44. T. Thurakitseree, C. Kramberger, P. Zhao, S. Aikawa, **S. Harish**, S. Chiashi, E. Einarsson, S. Maruyama, Diameter controlled and Nitrogen doped vertically aligned single wall carbon nanotubes, *Carbon*, Volume 50, Issue 7, 2012, pp 2635-2640. [**Journal Impact Factor – 7.466**]

45. P. Elayiaraja, **S. Harish**, L. Wilson, A. Bensely, D. Mohan Lal, Experimental investigation on heat transfer characteristics of metal foam heat sink for electronic cooling applications, *Experimental Heat Transfer*, Volume 23, Issue 3, 2010, pp 185-195. [Journal Impact Factor – 2.000]
46. **S. Harish**, G. Asirvatham, J. Bose, A. Bensely, Experimental analysis of parallel plate and cross-cut pin fin heat sinks for electronic cooling applications, *Thermal Science*, Volume 14, Issue 1, 2010, pp 147-156. [Journal Impact Factor – 1.541]
47. **S. Harish**, A. Bensely, D. Mohan Lal, A. Rajadurai, Gyöngyvér B. Lenkey, Microstructural study of cryogenically treated En31 bearing steel, *Journal of Materials Processing Technology*, Volume 209, Issue 7, 2009, pp 3351-3357. [Journal Impact Factor – 4.178]
48. **S. Harish**, D. Peter Michael, A. Bensely, D. Mohan Lal, A. Rajadurai, Mechanical property investigation of natural fiber coir composite, *Materials Characterization*, Volume 60, Issue 1, 2009, pp 44-49. *Ranked as one of the top 25 hottest articles published in Materials Characterization journal in 2009.* [Journal Impact Factor – 3.220]
49. A. Bensely, L. Shyamala, **S. Harish**, D. Mohan Lal, G. Nagarajan, Krzysztof Junik, A. Rajadurai, Fatigue behaviour and fracture mechanism of cryogenically treated En 353 steel, *Materials & Design*, Volume 30, Issue 8, 2009, pp 2955-2962. [Journal Impact Factor – 5.770]

ARTICLES IN MAGAZINES/NEWS COVERAGE

1. Nature India Blogs Interview – Away from home: Of ‘small’ things and big, April 2014.
2. Article spotlight – A room temperature alternative to reducing the thermal conductivity of crystalline silicon, July 2014. <https://www.nanowerk.com/spotlight/spotid=36409.php>
3. Article spotlight – Carbon nanotubes lead to strikingly large contrast in thermal conductivity of phase change materials, July 2013. <https://www.nanowerk.com/spotlight/spotid=31380.php>
4. Article spotlight – Carbon nanotubes enhance the performance of heat transfer nanofluids, May 2012. <https://www.nanowerk.com/spotlight/spotid=25206.php>

5. A. Bensely, D. Senthilkumar, **S. Harish**, D. Mohan Lal, G. Nagarajan, A. Rajadurai, Pete Paulin, Cryogenic Treatment of Gear Steel, *Gear solutions Magazine*, October 2011.

PEER REVIEWED CONFERENCE PROCEEDINGS

1. S. Ghosh, **S. Harish**, B.B. Saha, Thermoelectric properties of Graphene and Carbon Nanotube, Proceedings of International Exchange and Innovation Conference on Engineering & Sciences (IEICES) (5), 30-31, 2019-10-24, 2019, Kyushu University, Japan.
2. K.S.Sagar, D. Orejon, A. Askounis, **S. Harish**, Y. Takata, Sundararajan, A. Patamatta, Thermocapillary migration of water droplets on superhydrophilic surfaces, Indian Heat and Mass Transfer Conference, IIT Roorkee, December 2019, India.
3. C. Selvam, D. Mohan lal, **S. Harish**, Heat transport and pressure drop characteristics of ethylene glycol based nanofluid with silver nanoparticles, *IOP Conference Series: Materials Science and Engineering*, Volume 402, 2018.
4. N. Das, **S. Harish**, Enhanced Melting of Phase Change nanocomposites in latent heat thermal storage systems, *Proceedings of the 4th International Forum on Heat Transfer*, November 2016, Sendai, Japan.
5. ML. Palash, S. Mitra, **S. Harish**, K.Thu, BB. Saha, Topographic analysis of silica gel imaged with atomic force microscopy, *18th Cross Straits Symposium on Energy and Environment Science and Technology*, November 2016, Shanghai, China.
6. M. Kohno, **S. Harish**, M.Tabara, Y.Ikoma, Z.Horita, Reduction in thermal conductivity of bulk silicon processed by high pressure torsion, *Proceedings of the International Workshop on Giant Straining Process for Advanced Materials*, July 2016, Fukuoka, Japan.
7. **S. Harish**, D. Orejon, Y. Takata, M. Kohno, Thermal Conductivity Enhancement of Phase Change Nanocomposite in Solid and Liquid State with Single-Walled Carbon Nanohorn inclusions, *International Conference on Polygeneration*, February 2015, Chennai, India.

8. **S. Harish**, Y. Takata, M. Kohno, Enhanced thermal conductivity of nanostructured phase change composite for thermal energy storage, *Proceedings of ASME International Mechanical Engineering Congress and Exposition*, November 2014, Montreal, Canada.
9. **S. Harish**, K. Ishikawa, E. Einarsson, J. Shiomi, S. Maruyama, Temperature dependent thermal conductivity enhancement of water with surfactant encapsulated single walled carbon nanotube inclusion, *Proceedings of the 3rd International Forum on Heat Transfer*, November 2012, Nagasaki, Japan.
10. **S. Harish**, K. Ishikawa, E. Einarsson, T. Inoue, S. Chiashi, J. Shiomi, S. Maruyama, Enhanced thermal conductivity of water with surfactant encapsulated and individualized single walled carbon nanotube dispersions, *Proceedings of the ASME 3rd Micro/Nanoscale Heat and Mass Transfer International conference*, March 2012, Atlanta, USA.
11. **S. Harish**, K. Ishikawa, E. Einarsson, S. Aikawa, M. Watanabe, S. Chiashi, J. Shiomi, S. Maruyama, Thermal conductivity of single walled carbon nanotube suspensions in ethylene glycol: Experiments and Theoretical Limits, *Proceedings of the 4th International Symposium on Heat Transfer and Energy conversion*, January 2012, Guangzhou, China.
12. Herbert Raj, **S. Harish**, R. Nishanth Chandran, Chandrasekhar.G, D.Mohan Lal, Numerical Simulation of R407C/R290/R600a refrigerant mixture in a HCFC22 hermetic reciprocating compressor, *Proceedings of International Conference on Modeling and Simulation*, August 2007, India.

CONFERENCE PRESENTATIONS

1. **S. Harish**, Enhanced performance of carbon nanocomposites in latent heat thermal energy storage system, *1st Virtual International Conference on Advances in Renewable and Sustainable Energy Systems*, December 2020, Chennai, India. [Plenary talk]
2. S. Ghosh, **S. Harish**, B.B. Saha, "Climate Adaptation and Building Energy Harvesting by Graphene Nanoplatelets Reinforced Cement Composites", *1st International Symposium on*

Construction Resources for Environmentally Sustainable Technologies (CREST 2020), September 23–25, 2020, Fukuoka, Japan. [Oral]

3. S. Ghosh, **S. Harish**, B.B. Saha, “Enhanced Thermoelectric Performance of Structural Material with Graphene Towards Building Energy Harvesting”, *17th Interstate Conference on Thermoelectrics and their Applications (ISCTA 2020)*, September 8–11, 2020, Saint Petersburg, Russia. [Oral]
4. S. Ghosh, **S. Harish**, B.B. Saha, “Toward Sustainable Energy Harvesting Using Hybrid Nanostructured Cement Composites”, *Kyushu University Platform of Inter/Transdisciplinary (Q-PIT) Energy Research*, January 27–31, 2020, Fukuoka, Japan. [Poster] ***Best poster award**
5. T.H. Rupam, M.L.Palash, I. Jahan, **S. Harish**, B.B. Saha, Green synthesis and adsorption characterization of an aluminium based metal organic framework, *The 21st Cross-Straits Symposium on Energy and Environmental Science and Technology (CSS-EEST 21)*, November 2019, Fukuoka, Japan. ***Best poster award**
6. S. Ghosh, **S. Harish**, B.B. Saha, “Thermoelectric Properties of Graphene and Carbon Nanotube”, *5th International Exchange and Innovation Conference on Engineering & Sciences (IEICES 2019)*, October 24–25, 2019, Fukuoka, Japan. [Oral]
7. S. Ghosh, **S. Harish**, B.B. Saha, Improved Thermoelectric performance of cement composites with graphene inclusions for energy harvesting, *17th Japan-China-Korea Symposium on Carbon Saves the Earth*, September 2019, Fukuoka, Japan. [Poster]
8. **S. Harish**, N.Das, Y.Takata, Thermal transport and melting characteristics of carbon based phase change nanocomposites, *XIIth International Conference on Computational Heat, Mass and Momentum Transfer (ICCHMT 2019)*, Rome, Italy, September 2019.
9. M. Kohno, M. Kashifuji, K. Matsuda, **S. Harish**, Y. Ikoma, M. Arita, J. Shiomi, Z.Horita, Thermal and electrical property of silicon with metastable phases introduced by HPT process, *16th UK Heat Transfer Conference*, Nottingham, September 2019.

10. S. Ghosh, **S. Harish**, K. Thu, B.B. Saha, Thermoelectric properties of graphene nanoplatelets reinforced cement composites towards energy harnessing, *International Conference on Polygeneration*, May 2019, Fukuoka, Japan. [Poster] ***Best poster award**
11. M. Sivashankar, S. Manikandan, C. Selvam, **S. Harish**, Thermal management of concentrated photovoltaics using graphene based nanocomposites, *International Conference on Polygeneration*, May 2019, Fukuoka, Japan.
12. S. Ghosh, **S. Harish**, K. Thu, B.B. Saha, “Energy harvesting from structural surface and Urban Heat Island (UHI) effect alleviation utilizing the Thermoelectric effect”, Kyushu University Platform of Inter/Transdisciplinary (Q-PIT) Energy Research, January 28–February 1, 2019, Fukuoka, Japan. [Poster] ***Best poster award**
13. **S. Harish**, N. Das, M. Kohno, Y. Takata, Enhanced performance of carbon nanocomposites in latent heat thermal energy storage system, *Nanotechnology and Materials Science Congress*, November 2018, Kuala Lumpur, Malaysia. [**Invited presentation**]
14. V. Sharma, D. Orejon, Y. Takata, V. Krishnan, **S. Harish**, Bioinspired *G. dalenii* surface for condensation and fog harvesting applications, *71st Annual Meeting of the APS Division of Fluid Dynamics*, November 2018, Atlanta, USA.
15. R. Nazareth, G. Karapetsas, **S. Harish**, D. Orejon, K. Sefiane, P. Valluri, The stability of evaporating binary liquid film heated from below, *71st Annual Meeting of the APS Division of Fluid Dynamics*, November 2018, Atlanta, USA.
16. **S. Harish**, M. Kohno, Y. Takata, Melting of carbon nanocomposites in latent heat thermal storage systems, *29th International Symposium on Transport Phenomena*, October 2018, Honolulu, Hawaii, USA.
17. **S. Harish**, Y. Ikoma, Y. Takata, Z. Horita, M. Kohno, Thermal Conductivity Reduction of Bulk GaAs using Giant Strain, *The Japan Society of Mechanical Engineers – Thermal Engineering Conference*, October 2018, Toyama, Japan.

18. D. Orejon, V. Sharma, Y. Takata, V. Krishnan, **S. Harish**, Soft lithography replication of bio-inspired G.dalenni surface for condensation, fog harvesting and microfluidics applications, *6th Micro and Nano Flows Conference 2018*, September 2018, Atlanta, USA.
19. **S. Harish**, M. Kohno, Y. Takata, Thermal conductivity enhancement of phase change composites in solid and liquid state with nano carbon inclusions, *16th International Heat Transfer Conference*, August 2018, Beijing, China [Poster].
20. **S. Harish**, S. Kawawaki, Y. Takata, M. Kohno*, Thermoelectric properties of silicon subjected to giant strain, *55th National Heat Transfer Symposium*, May 2018, Sapporo, Japan.
*Presenting author
21. C. Selvam, D. Mohan lal, **S. Harish**, Heat transport and pressure drop characteristics of ethylene glycol based nanofluid with silver nanoparticles, *2nd International Conference on Advances in Mechanical Engineering*, March 2018, Chennai, India.
22. **S. Harish**, Nanoengineering heat conduction for thermal energy storage applications, *3rd International Conference on Innovative Design, Analysis and Development Practices in Aerospace and Mechanical Engineering*, February 2018, Chennai, India. [**Keynote presentation**]
23. **S. Harish**, M. Kohno, Y. Takata, Effect of carbon nanocomposites on melting behavior in latent heat thermal storage systems, *28th International Symposium on Transport Phenomena*, September 2017, Kandy, Sri Lanka.
24. **S. Harish**, M. Tabara, Y. Ikoma, Z. Horita, Y. Takata, M. Kohno, Thermal transport characteristics of semiconductors subjected to high pressure torsion, *The 15th International Conference on Advanced Materials*, August 2017, Kyoto, Japan.
25. ML. Palash, S. Mitra, **S. Harish**, K. Thu, T. Nishiyama, K. Takahashi, BB. Saha, An approach for quantitative analysis of pore size distribution of silica gel using atomic force microscopy, *International Sorption Heat Pump Conference*, August 2017, Tokyo, Japan.

26. **S. Harish**, BB. Saha, Performance enhancement of trigeneration and energy storage systems using innovative materials, International Conference on Ideation and Innovation in Sustainable Sciences and Technology, June 2017, Kuala Lumpur, Malaysia. [**Keynote presentation**]
27. C. Selvam. D. Mohan lal, **S. Harish**, Thermal transport characteristics of graphene based suspensions for energy applications, *International Conference on Ideation and Innovation in Sustainable Sciences and Technology*, June 2017, Kuala Lumpur, Malaysia.
28. S. Harish, N. Das, M. Kohno, Y. Takata, Phase change behavior of carbon based nanocomposites in horizontal shell-tube latent heat thermal energy storage systems, *2nd Thermal and Fluids Engineering Conference*, April 2017, Las Vegas, USA.
29. **S. Harish**, M. Kohno, Y. Takata Enhanced heat transport and phase change behavior of nanocomposites for thermal energy storage applications, *6th International Symposium on Micro and Nano Technology*, March 2017, Fukuoka, Japan.
30. N. Das, M. Kohno, Y. Takata, **S. Harish***, Effect of carbon nanofiller dimensionality on the melting of phase change nanocomposites in vertical shell-tube thermal energy storage unit, *1st Asian Conference on Thermal Sciences*, March 2017, Jeju Island, Korea. *Presenting author
31. M. Kohno, S. Kawawaki, **S. Harish**, Y. Ikoma, Z. Horita, Y. Takata, Thermal conductivity reduction of bulk silicon by HPT process, *1st Asian Conference on Thermal Sciences*, March 2017, Jeju Island, Korea.
32. S. Harish, N. Das, M. Kohno, Y. Takata, Carbon nanocomposites for enhanced thermal energy storage applications, *Gordon Conference on Micro & Nanoscale Phase Change Heat Transfer*, Galveston, January 2017, Texas, USA [Poster].
33. K. Isogai, **S. Harish**, Y. Takata, Y. Homma, S. Maruyama, S. Chiashi, M. Kohno, Observation of water adsorption/desorption behaviour in vertically aligned single-walled carbon nanotube films using Raman spectroscopy, *International Symposium on Micro-Nano Science and Technology*, December 2016, Tokyo, Japan [Poster].

34. S. Kawawaki, **S. Harish**, Y. Ikoma, Z. Horita, Y. Takata, M. Kohno, Measurement of thermal conductivity of HPT processed bulk silicon, *International Symposium on Micro-Nano Science and Technology*, December 2016, Tokyo, Japan [Poster].
35. M. Kohno*, D. Orejon, Y. Takata, **S. Harish**, Enhanced thermal transport of phase change nanocomposite with various carbon fillers, *12th International Conference on Flow Dynamics*, October 2016, Sendai, Japan. [Invited presentation] *Presenting author
36. N. Das, M. Kohno, Y. Takata*, **S. Harish**, Enhanced phase change behavior of nanocomposites in shell-tube latent heat thermal energy storage systems, *IVth International Symposium on Innovative Materials for Processes in Energy Systems*, October 2016, Taormina, Sicily, Italy.
* Presenting author
37. **S. Harish**, N. Das Enhanced melting of phase change nanocomposites in latent heat thermal storage systems, *Asia Pacific Conference on Energy Storage and Conversion*, September 2016, Hsinchu, Taiwan. [Invited presentation]
38. **S. Harish**, M. Kohno, Y. Takata, Thermal conductivity enhancement of phase change composites in solid and liquid state with nano carbon inclusions, *53rd National Heat Transfer Symposium*, May 2016, Osaka, Japan.
39. **S. Harish**, D. Orejon, M. Kohno, Enhanced thermal conductivity of phase change nanocomposite with graphene nanosheets, *International Conference on Advanced Nanomaterial and Nanotechnology*, November 2015, Guwahati, India.
40. **S. Harish**, D. Orejon, Y. Takata, M. Kohno, Enhanced thermal conductivity of phase change nanocomposite in solid and liquid state with single-walled carbon nanohorn inclusions, *International Workshop on Heat Transfer Advances for Energy Conservation and Pollution Control*, October 2015, Taiwan. [Keynote presentation]
41. **S. Harish**, D. Orejon*, Y. Takata, M. Kohno, Enhanced thermal transport of phase change nanocomposite by nano carbon inclusions, *7th Micro-Nano Engineering Symposium*, October 2015, Niigata, Japan. *Presenting author

42. M.Tabara, **S. Harish**, Y.Ikoma, Z.Horita, Y.Takata, D.G. Cahill, M.Kohno, Reduction in thermal conductivity of semiconductors processed by high pressure torsion, *International Workshop on Heat Transfer Advances for Energy Conservation and Pollution Control*, October 2015, Taiwan.
43. M.Tabara, **S. Harish**, Y.Ikoma, Z.Horita, Y.Takata, D.G. Cahill, M.Kohno, Manipulating phonon heat conduction by high pressure torsion in silicon based thermoelectrics, *UK Heat Transfer Conference*, September 2015, Edinburgh [Poster].
44. **S. Harish**, D. Orejon, Y. Takata, M. Kohno, Study of heat transport in lauric acid based phase change nanocomposite with graphene nanoplatelets, *5th International Symposium on Micro and Nano Technology*, May 2015, Calgary, Canada.
45. M. Kohno, **S. Harish**, D. Orejon, Y. Takata, Enhanced thermal conductivity of fatty acid based phase change nanocomposite with graphene nanoplatelets, *Annual Conference of Thermal Engineering Division, Japan Society of Mechanical Engineering*, November 2014, Tokyo, Japan.
46. M.Kohno, **S. Harish**, M.Tabara, Y.Ikoma, Z.Horita, Y.Takata, D.G. Cahill, Reduction in thermal conductivity of silicon processed by high pressure torsion, *8th US-Japan Joint seminar on Nanoscale transport phenomena*, July 2014, Santa Cruz, California, USA.
47. S. N. Schiffres, **S. Harish**, S. Maruyama, J. Shiomi, J. A. Malen, Freezing rates affect thermal and electrical conductivity in frozen nanofluids, *ASME International Mechanical Engineering Congress and Exposition*, November 2013, San Diego, California, USA.
48. **S. Harish**, K. Ishikawa, S. Chiashi, J. Shiomi, S. Maruyama, Unusual thermal conduction characteristics of phase change composites with single walled carbon nanotube inclusion, *APS March Meeting*, 2013, Baltimore, USA.
49. **S. Harish**, K. Ishikawa, E. Einarsson, S. Chiashi, J. Shiomi, S. Maruyama, Influence of Carbon nano-inclusion dimensionality in the thermal conductivity enhancement of aqueous and non-

aqueous fluids, *44th Fullerenes-Nanotubes-Graphene General Symposium*, March 2013, Tokyo, Japan.

50. S. N. Schiffres, **S. Harish**, S. Maruyama, J. Shiomi, J. A. Malen, Freezing rates affect thermal and electrical conductivity in frozen nanofluids, *MRS Spring Meeting*, April 2013, San Francisco, California, USA.
51. **S. Harish**, K. Ishikawa, E. Einarsson, T. Inoue, S. Chiashi, J. Shiomi, S. Maruyama, Reversible thermal conductivity enhancement of phase change composites with single walled carbon nanotube inclusions, *4th International Conference on Advanced Nano materials*, October 2012, Chennai, India.
52. **S. Harish**, K. Ishikawa, T. Inoue, S. Chiashi, J. Shiomi, S. Maruyama, Switchable thermal conductivity enhancement of phase change composites with single walled carbon nanotube inclusions, *43rd Fullerenes-Nanotubes-Graphene General Symposium*, September 2012, Sendai, Japan [Poster].
53. T. Thurakitseree, C. Kramberger, P. Zhao, S. Aikawa, **S. Harish**, S. Chiashi, E. Einarsson, S. Maruyama, Influence of Nitrogen incorporation on the diameter of single walled carbon nanotubes, *13th International conference on science and applications of nanotubes*, June 2012, Brisbane, Australia.
54. T. Thurakitseree, C. Kramberger, P. Zhao, S. Aikawa, **S. Harish**, S. Chiashi, E. Einarsson, S. Maruyama, Reducing the diameter of vertically aligned single walled carbon nanotubes by nitrogen incorporation: Synthesis and spectroscopy study, *International Winter School on Electronic properties of novel materials*, March 2012, Kirchberg, Austria.
55. D. Nakamura, T. Sasaki, H. Saito, Y. H. Matsuda, **S. Harish**, S. Maruyama, S. Takeyama, Magneto-Optical effects on single wall carbon nanotubes in ultra-high magnetic fields, *International symposium on development of core technologies for Green Nanoelectronics*, March 2012, Japan [Poster].
56. **S. Harish**, K. Ishikawa, E. Einarsson, T. Inoue, S. Aikawa, S. Chiashi, J. Shiomi, S. Maruyama, Increasing the thermal conductivity of fluids by adding single-walled carbon nanotubes

encapsulated in sodium deoxycholate, *7th US-Japan Joint seminar on Nanoscale transport phenomena*, December 2011, Ise-Shima, Japan [Poster].

57. **S. Harish**, K. Ishikawa, E. Einarsson, T. Thurakitseree, P. Zhao, S. Chiashi, J. Shiomi, S. Maruyama, Towards the Development of Ultra High Efficient Coolants Based on Single-Walled Carbon Nanotube Suspensions, *41st Fullerenes-Nanotubes-Graphene General Symposium*, September 2011, Tokyo, Japan [Poster].
58. **S. Harish**, R. Nishanth Chandran, S. Angel Dharshini, A. Bensely, Development of Cryogenic Insulators for High Temperature Superconductors, *Inter University Accelerator Centre*, New Delhi, 2006, India.

BOOK CHAPTERS & EDITORIAL ACTIVITIES

1. **Guest Editor:** *Heat Transfer Engineering*, Taylor & Francis, Special Issue on *Proceedings of the 5th International Conference on Polygeneration, 2020*.
2. **Editor:** *Proceedings of the 5th International Conference on Polygeneration May 2019, Fukuoka, Japan (ICP 2019)*, B.B. Saha, Y. Hamamoto, **S. Harish**, K.Thu, H. Watanabe, K. Miyata. ISBN: 978-4-944005-29-1.
3. **S. Harish**, M. Kohno, Heat Transport Control of Phase Change Materials using Nanocarbon Structures, Japan Society of Mechanical Engineers, 2019. (Japanese)

INVITED SEMINARS

1. Interfacial thermal transport behavior in graphene based nanocomposites during first order phase transition, March 2019, *International Institute of Carbon-Neutral Energy Research Seminar Series*, Kyushu University, Fukuoka, Japan.
2. On the interfacial thermal conductance in carbon nanocomposites during first order phase transition, February 2018, *HYDROGENIUS and I²CNER Joint Research Symposium*, Kyushu University, Fukuoka, Japan.
3. Nano engineered materials for thermal energy storage systems, September 2017, Vel Tech University, Chennai, India.
4. Nano-structured materials for enhanced energy harvesting and storage applications, February 2017, *National Institute of Technology, Tiruchirappalli, India*.

5. Extra-ordinary heat conduction in nanoscale, February 2017, College of Engineering, Guindy, Anna University, Chennai, India.
6. Nano engineering heat conduction for energy harvesting and energy storage applications, November 2016, The University of Tokyo, Japan.
7. Enhanced heat transport and phase change behavior of nanocomposites for thermal energy storage applications, November 2016, International Institute of Carbon-Neutral Energy Research Seminar Series, Kyushu University, Fukuoka, Japan.
8. Nano engineering thermal transport for energy applications, September 2016, National Central University, Taiwan.
9. Nano-engineering heat conduction for efficient heat transport and energy harvesting materials, February 2015, Indian Institute of Technology, Gandhinagar, India.
10. Heat conduction in nanostructured materials, November 2014, Shanghai Jiaotong University, Shanghai, China.
11. Heat conduction in nanostructured materials, November 2014, Tsinghua University, Beijing, China.

JOURNAL CITATION REPORT

Number of publications - 49

Number of citations - 1712 (Source: Google scholar)

h- index - 22, I -10 index - 33 (Source: Google scholar)

RESEARCH GRANTS OBTAINED

1. JSPS Grant in Aid for Research Activity Start-up

Project period: 01/04/2016 – 31/03/2018

Total Budget: 3 million yen (Including indirect cost)

Principal Investigator: Dr. Sivasankaran Harish

2. Wakaba Challenge – Kyushu University QR program

Project period: 01/04/2017 – 31/03/2018

Total Budget: 1.125 million yen (Direct cost)

Principal Investigator: Dr. Sivasankaran Harish

3. International Institute for Carbon-Neutral Energy Research –MEXT funded program

Project period: 01/04/2016 – 31/03/2020

Total Budget: 7.2 million yen (Direct cost)

Principal Investigator: Dr. Sivasankaran Harish

4. JSPS Grant-in-Aid for Post-Doctoral Fellows

Project period: 01/04/2013 – 31/03/2016

Total Budget: 2.3 million yen (Direct cost)

JSPS Fellow: Dr. Sivasankaran Harish

Host Researcher: Prof. Masamichi Kohno

REVIEWER OF JOURNALS AND RECOGNITIONS

- 1) ACS Omega
- 2) ACS Nano
- 3) Applied Energy (*Outstanding Reviewer Recognition – January 2017*)
- 4) Applied Physics Express
- 5) Applied Sciences
- 6) Applied Thermal Engineering (*Outstanding Reviewer Recognition – December 2017*)
- 7) ASME Journal of Heat Transfer
- 8) Carbon
- 9) ChemEngineering
- 10) Chemical Physics Letters
- 11) Chinese Chemical Letters
- 12) Colloids & Surfaces A: Physicochemical & Engineering Aspects
- 13) Current Applied Physics
- 14) Diamond & Related Materials
- 15) Energies
- 16) Energy
- 17) Energy & Buildings
- 18) Energy Conversion & Management
- 19) Experimental Thermal and Fluid Science
- 20) Heat Transfer Engineering (*Guest Editor – ICP 2019 Special Issue*)
- 21) International Communications in Heat & Mass Transfer
- 22) International Journal of Astronautics and Aeronautical Engineering

- 23) International Journal of Energy Research
- 24) International Journal of Heat & Mass Transfer (*Outstanding Reviewer Recognition – May 2017*)
- 25) International Journal of Refrigeration
- 26) International Journal of Thermal Sciences
- 27) Journal of Applied Physics
- 28) Journal of Energy Storage (*Outstanding Reviewer Recognition – November 2019*)
- 29) Journal of Enhanced Heat Transfer
- 30) Journal of Heat Transfer
- 31) Journal of Thermal Science and Technology
- 32) Materials
- 33) Metals
- 34) Molecules
- 35) Nanoscale
- 36) Renewable Energy (*Outstanding Reviewer Recognition – September 2019*)
- 37) Sensors
- 38) Solar Energy Materials and Solar Cells (*Outstanding Reviewer Recognition – May 2018*)
- 39) Thermochimica Acta
- 40) Thermal Science
- 41) Thermal Science and Engineering Progress

CONFERENCE/SEMINARS ORGANIZED

1. International Advisory Committee, 1st International Conference on Advances in Thermal Engineering and Applications, March 2021, Chennai, India.
2. International Advisory Committee, 1st Virtual International Conference on Advances in Renewable and Sustainable Energy Systems, December 2020, Chennai, India.
3. Technical Program Committee, 4th International Conference on Energy Materials and Applications, May 2019, Beijing, China.
4. Local Organizing Committee, 5th International Conference on Poly-generation, May 2019, Fukuoka, Japan.
5. Session Chairman, Thermal transport in Energy Systems, International Symposium on Transport Phenomena, November 2018, Hawaii, USA.

6. Organizing Chairman, 121st Institute Interest Seminar Series (I²CNER), April 2018, Fukuoka, Japan.
7. Technical Program Committee, 3rd International Conference on Energy Materials and Applications, May 2018, Salamaca, Spain.
8. International Advisory Committee, 3rd International Conference on Innovative Design, Analysis and Development Practices in Aerospace and Mechanical Engineering, February 2018, Chennai, India.
9. Organizing Chairman, 110th Institute Interest Seminar Series (I²CNER), August 2017, Fukuoka, Japan.
10. Session Chairman, Green Energy Technology, International Conference on Ideation and Innovation in Sustainable Sciences and Technology, June 2017, Kuala Lumpur, Malaysia.
11. Technical Program Committee, 2nd International Conference on Energy Materials and Applications, May 2017, Hiroshima, Japan.
12. Session Co - Chairman, Micro and Nanoscale Systems, Flow and heat exchange in micro and nano systems, 2nd Thermal and Fluids Engineering Conference, April 2017, Las Vegas, USA.
13. International Advisory Committee, International Conference on Functional Materials, Characterization, Solid State Physics, Power, Thermal and Combustion, April 2017, Ramachandra College of Engineering, Andhra Pradesh, India.
14. Local Organizing Committee, 6th International Symposium on Micro-Nano Technology, March 2017, Fukuoka, Japan.
15. Session Chairman, Experimental Heat Conduction Session, 6th International Symposium on Micro-Nano Technology, March 2017, Fukuoka, Japan.
16. Organizing Chairman, Seminar by Prof. Li Shi, University of Texas, Austin, 20th International Institute of Carbon-Neutral Energy Research Seminar Series, March 2017, Fukuoka, Japan.
17. Organizing Chairman, 103rd Institute Interest Seminar Series (I²CNER), March 2017, Fukuoka, Japan.
18. Organizing Chairman, Seminar by Prof. Evelyn Wang, Massachusetts Institute of Technology, 11th International Institute of Carbon-Neutral Energy Research Seminar Series, November 2016, Fukuoka, Japan.
19. Organizing Chairman, 98th Institute Interest Seminar Series (I²CNER), November 2016, Fukuoka, Japan.

SOCIETY MEMBERSHIPS

- Member of American Society of Mechanical Engineers (ASME)