K Narayan Prabhu, PhD

Professor (HAG)
Department of Metallurgical and Materials Engineering
National Institute of Technology Karnataka (NITK), Surathkal

knprabhu@nitk.edu.in | knprabhu.nitk@gmail.com

Telephone: (0824) 2474000 x3756 | Mobile: 9343560935

Appointments

Professor (HAG), NITK Oct 2018 - present

Department of Metallurgical & Materials Engineering. Responsibilities in this post include teaching both undergraduate and postgraduate students in metallurgical/materials engineering and research.

Professor, NITK Nov 2007 - Sept 2018

Assistant Professor, NITK Oct 1999 - Oct 2007

Senior Lecturer, (KREC, now NITK) Sept 1996 - Sept 1999

Lecturer, (KREC, now NITK) Sept 1992 - Aug 1996

Lecturer (temporary), (KREC, now NITK) Jul 1990 - Aug 1992

Education

Ph.D. - Metallurgical Engineering, KREC, Mangalore University 1991

Advisor: Dr. T. S. Prasanna Kumar

Thesis: Investigation of heat transfer at the casting die-wall interface during solidification of aluminium base alloys

M.Tech. - Process Metallurgy, KREC, Mangalore University 1987 (I Class with Distinction)

M.Sc. - Industrial Chemistry, University of Mysore 1985 (I Class with Rank I)

B.Sc. - Physics, Chemistry, Maths, Canara College 1983 (I Class)

Early Education

Canara High School and Pre-University College, Mangalore	1975-1980
Government Higher Primary School	1968-1975

Scientific Education and Training

Visiting Research Scientist Jun 2014 - Jul 2014

School of Metallurgy & Materials, University of Birmingham

Visiting Research Scientist May 2008 - Jul 2008

School of Metallurgy & Materials, University of Birmingham

DST-The Royal Society Visiting Fellow May 2005 - Aug 2005

Interdisciplinary Research Center (IRC) in Materials Processing, University of Birmingham, under the India-UK Network scheme

Indian National Science Academy Visiting Fellow May 2002 - Jun 2002

Regional Research Laboratory (Now CSIR NIIST), Thiruvananthapuram

Postdoctoral Research Associate Jun 1998 - Jun 2000

Manchester Materials Science Centre, University of Manchester and UMIST

DST-SERB Visiting Fellow Dec 1997 - Jan 2008

Regional Research Laboratory (Now, CSIR NIIST), Thiruvananthapuram

Honorary Research Fellow Mar 1996 - Mar 1997

IRC in Materials for High Performance Applications, University of Birmingham

Research Associate Aug 1987 - Jun 1990

Ph. D. Research at Department of Metallurgical and Materials Engineering, KREC (now NITK)

Membership of Professional Bodies

- Indian Society for Technical Education (Life Member)
- ASM International, USA (Member)
- Institute of Indian Foundrymen (Life Member)
- Indian Institute of Metals (Life Member)

Research Experience

Research Interests

- Transport Phenomena in Materials Processing with special interest in solidification and quenching heat transfer
- Lead-free solders - wettability and solder joint reliability
- Nanofluids
- Thermal interface and energy storage materials
- Melt treatment of Al-Si alloys
- Superhydrophobic surfaces in nature

M.Tech. and Ph.D. Guidance

M.Tech.* : 109 (completed) + 2 ongoing;

M.Tech. (Research): 2 (completed);

Ph.D.: 16 (completed) + 2 (ongoing)

*M.Tech. thesis submitted by Mr S. Karanth was adjudged as the **Best Thesis** at the National level for the year 1998 by the Indian Institute of Metals and was awarded the **A.K. Bose Gold Medal**.

*M.Tech. theses submitted by Mr. B.N. Ravishankar and Mr. K. Obanna were adjudged as the **Best M.Tech. Theses** in the area of Foundry Technology at the national level for the year 2002 and 2003 by the Institute of Indian Foundrymen and were awarded the **Prof. P. Banerjee Memorial Silver Medal**.

*M.Tech. Thesis submitted by Mr. Jayananda was adjudged as the **Best Project** by **Aluminium Casters' Association of India (ALUCAST)** for the year 2008 and was awarded the **ALUCAST**

Gold Medal.

Funded Research Projects

Ongoing Projects

ANRF TARE Project, Design and Development of Thermo Electric Cooler Integrated Nano-PCM Based Portable Milk Device for Rural Use, File Number: TAR/2023/000177 (₹ 18.3 lakhs)

Completed Projects

DST Young Scientist Project on 'Modelling of Heat Transfer and Solidification Behaviour of Chill Cast Aluminium Alloys' (grant no. SR/OY/E-15/93 and Sanctioned Amount: ₹ 2.2 lakhs)

AICTE Thrust Area Project on Process Modelling and Automation in Metal Casting (Grant no: F.No/RD11/BOR/95/TMAT/27/REC/394 and Sanctioned Amount: ₹ 8 lakhs)

UGC Career Award Project (Grant No. F.6-3/93 (SA-III) dated 1-08-1994 and Sanctioned Amount: ₹ 2 lakhs)

Staff Research Project on 'Assessment of Degree of Modification of Chill Cast Al-Si Alloys by Thermal Analysis Technique' (Grant No: KREC/SRP/MRG- PROC/2001 and Sanctioned Amount: ₹ 17500)

MHRD Research Project (Grant No. F.26-4/2002-TSV dt. 31.3.2003) on 'Non- destructive microstructure control of Al-Si alloys (₹ 7 lakhs)

DRDO Research Project (Grant No. ERIP/ER/0304272/M/01 dt. 07.08.2004) on 'Measurement of Thermal contact Conductance and Contact Angle during solidification of lead free solders against metallic substrates' (₹ 33.65 lakhs)

DRDO Research Project (Grant No. ERIP/ER/0504338/M01/975 dt. 6.6.2007) on 'Measurement of heat transfer coefficients during solidification of alloy under normal gravity conditions' (₹ 15 lakhs)

DRDO Research Project (Grant No. ERIP/ER/1006009M01/1356 dt. 13.9.2011) on 'Assessment of Solder Joint Reliability and Effect of Cooling Rate on Mechanical Properties of Lead free Solders (₹ 82 lakhs)

DST Research Project (Grant No. SR/S3/ME/0041/2010 dated 04.05.2012) on 'Investigation of the effect of addition of nanoparticles on wetting kinematics, kinetics and cooling severity of quench media for industrial heat treatment' - (₹ 30.47 lakhs)

Industrial Consultancy Project awarded by ABB Limited, Bangalore on 'Comparative Study of Wetting Behavior and Mechanical properties of Pb- based and Pb-free Solders for Soldering Applications at ABB Limited ' (₹ 13.8 lakhs)

SERB-TARE project (Grant No. TAR/2020/00010) on 'The effect of interfacial heat flux during WAAM on microstructure, distortion and mechanical properties of aluminium alloys' (₹ 18.3 lakhs)

Awards and Recognition

IIM Distinguished Educator Award by the Indian Institute of Metals, 2024

National Metallurgists Day Metallurgist of the Year Award by the Ministry of Steel, Government of India, 2017

Honorary Research Fellowship at the IRC in Materials Processing, University of Birmingham, UK, 2005-2011

Sir C.V. Raman Young Scientist Award in Engineering Science 2001 by the Government of Karnataka, India, February 2003.

Binani Trust Silver Medal for the best paper (nonferrous) published in the Indian Foundry Journal during 1998-2000, February 2001

Best Paper Award for the paper titled 'Casting/mould interfacial heat transfer during solidification of aluminium matrix composites' at the 6th Asian and 47th Indian Foundry Congress, Calcutta , Jan. 1999

Postdoctoral Research Associateship at the Manchester Materials Science Centre, University of Manchester and UMIST, United Kingdom, 1998

Canara College Silver Jubilee Distinguished Alumnus Award, December 1997

SERC Visiting Fellowship at the Regional Research Laboratory, Thiruvananthapuram by the Science and Engineering Research Council , Government of India, 1997

BOYSCAST Visiting Research Fellowship at the University of Birmingham, United Kingdom by the Department of Science and Technology, Government of India, 1996

DST Young Scientist Project Award, 1994.

Career Award in Engineering & Technology for Young Teachers by the University Grants Commission, Government of India, 1994

National Metallurgists Day Young Metallurgists' Award by the Ministry of Steel, Government of India, 1993

National Merit Certificate by the Ministry of Education, Government of India for meritorious performance in Secondary School Leaving Certificate Examination: 1978

The paper titled '**Review of non-reactive and reactive wetting of liquids on surfaces**', published in the journal **Advances in Colloid and Interface Science**, Vol. 133, 2007 pp 61-89 was ranked **4th among the top 25 hottest articles by ScienceDirect**.

The paper titled '**Solidification and casting/mould interfacial characteristics of aluminium matrix composites**' published in the journal '**Composite Science & Technology**', 67(1), 70-78, 2007 was ranked **11th among the top 25 hottest articles by Science Direct**.

The paper titled '**Determination of Spread Activation Energy and Assessment of Wetting Behavior of Solders on Metallic Substrates**' published in the **Journal of Electronic Packaging, ASME**, 132, 2010 was among the **top 3 most full text downloaded articles during Dec.2010 - Feb.2011**.

The paper titled '**Review of thermo-physical properties, wetting and heat transfer characteristics of nanofluids and their applicability in industrial quench heat treatment**' published in **Springer Open Access Journal: Nanoscale Research Letters** was among the **top 10 most popular articles** as on 12, November 2011 and qualified as to identify those articles that have been especially highly accessed, relative to their age, and the journal in which they were published.

The **macro-profile of casting surface during downward solidification of Al-12% Si alloy against chills** investigated by our group was **featured on the cover page of the Fall Issue of the International Journal of Metal Casting**, 2011 published by the American Foundry Society (AFS).

The paper titled '**Reactive wetting, evolution of interfacial and bulk IMCs and their effect on mechanical properties of eutectic Sn-Cu solder alloy**' published in **Advances in Colloid and Interface Science**, vol. 166, Issues 1-2, 2011, 87-118 was ranked **10th among the top 25 hottest articles by Science Direct**.

The paper titled '**Review of Microstructure Evolution in Hypereutectic Al–Si Alloys and its Effect on Wear Properties**' published in **Transactions of Indian Institute of Metals, Springer**,

February 2014, Volume 67, Issue 1, pp 1-18 was **one of the top downloaded articles among the papers published**

The paper titled '**Effect of thermal conductivity and viscosity on cooling performance of liquid quench media**' published in the journal - **International Heat Treatment and Surface Engineering** was the **most read article in the year 2014**

Best Poster Award at the 6th **International Conference on Solidification Science and Processing** held at Hyderabad during 24-27, Nov. 2015.

Best Poster Award at the **International Conference on Sustainable Energy & Environmental Challenges** (SEEC2018), Bangalore, 01-03, Jan 2018

Paper titled "**Residual Stress and Distortion during Quench Hardening of Steels: A Review**" has been selected as an **Editor's Choice article for 2022 from the Journal of Materials Engineering and Performance**.

Service

Member, Global Data Base Project on Liquid Quenchants, International Federation of Heat Treatment and Surface Engineering, UK

Editorial Board Member: International Journal of Cast Metals Research, Maney Publishers, UK

Editorial Board Member: Material Performance and Characterization, ASTM

Reviewer for International Journals – Solder and Surface Mount Technology, Journal of ASTM International, Metallurgical & Materials Transactions B, Materials Design, Journal of Nanofluids, Surface & Coatings Technology, Experimental Heat Transfer, Journal of Materials Processing Technology, International Journal of Heat and Mass Transfer, Journal of Alloys and Compounds, Journal of Materials Science, International Journal of Heat and Fluid Flow, Materials Science and Engineering A, Langmuir, Journal of Materials Engineering Performance, Experimental Thermal and Fluid Science, Materials Performance and Characterization, International Journal of Cast Metals Research, Heat and Mass Transfer, Bulletin of Materials Science, Materials Science and Engineering B, Journal of Electronic Materials, International Journal of Thermal Sciences

Head of the Department of MME, Jan 2020 – Jan 2022

Local Coordinator of GIAN, NITK, an initiative by MHRD, Govt. of India, Jul 2015 – Sept 2019

Head of the Department of MME, Apr 2011 – Apr 2014

Reviewer for ASM Volume 4A Handbook, Steel Heat Treating Fundamentals and Processes, 2013

Reviewer for NPTEL Video Course on 'Steelmaking', 2010

Publications

Books

Prabhu, K Narayan and Nikolai Kobasko (2012). *Film and nucleate boiling processes*. ASTM International, p. 434. ISBN: 978-0-8031-7520-4. URL: http://www.astm.org/BOOKSTORE/PUBS/STP1534.htm.

Prabhu, K. Narayan (Aug. 2012). *Nanofluids*. ASTM International. ISBN: 978-0-8031-7555-6. DOI: 10.1520/STP1567-EB. URL: https://doi.org/10.1520/STP1567-EB.

Prabhu, K.N. (2011). *Lead-free Solders*. ASTM International, p. 217. ISBN: 978- 0-8031-7516-7. URL: http://www.astm.org/BOOKSTORE/PUBS/STP1530.htm.

Book Chapters

Samuel, Augustine and **K Narayan Prabhu** (2024). "Nanofluid Quench Media for Industrial Heat Treatment". In: *Quenchants and Quenching Technology*. ASM International, pp. 276–289.

Narayan Prabhu, K (2023). "Metallurgical and Materials Engineering at the National Institute of Technology Karnataka: A Historical Overview". In: *Indian Metallurgy: The Platinum Years*. Springer Nature Singapore Singapore, pp. 401–407.

Prabhu, K Narayan (2016a). "Nanofluids: Alternate Coolants". In: *Encyclopedia of Iron, Steel, and Their Alloys (Online Version)*. CRC Press, pp. 2301–2316.

– (2016b). "Quenchants: Polymer". In: *Encyclopedia of Iron, Steel, and Their Alloys (Online Version)*. CRC Press, pp. 2744–2760.

Prabhu, K Narayan, Vignesh Nayak, and Pranesh Rao (2016). "Polymer Quenchants for Industrial Heat Treatment". In: *Advances in Polymer Materials and Technology*. CRC Press, pp. 709–740.

Narayan Prabhu, K and G Ramesh (2014). "Nanofluids as Quenchants in Industrial Heat Treatment". In: *Steel Heat Treating Technologies*. ASM International, pp. 324–336.

Prabhu, K Narayan (2010). "Wetting Kinetics and Quench Severity of Selected Vegetable Oils for Heat Treatment". In: *Quenching Theory and Technology*. CRC Press, pp. 221–244.

Journals

Muhammed, Hisham J and **K Narayan Prabhu** (2025). "Effect of Ni nanoparticles reinforcement on wettability, microstructure and mechanical properties of SAC387 lead-free solder alloy". In: *Microelectronics Reliability* 174, p. 115895.

Muhammed, Hisham J and **Kotekar Narayan Prabhu** (2025). "Microstructure and Mechanical Properties of Sn-Ag-Cu Nanocomposite Solders: A Review". In: *Materials Performance and Characterization* 14.1, pp. 1–25.

Nathan, D Kamala and **K Narayan Prabhu** (2025). "Effect of Heat Transfer and Cooling Behavior on Opacity of Injection Molded Polyethylene Terephthalate (PET)". In: *Journal of Applied Polymer Science* 142.25, e57049.

Pai, K Raghavendra, Vijesh Vijayan, and **K Narayan Prabhu** (2025). "Investigation of the effect of process parameters on porosity, microstructure and mechanical properties of Al–5 Mg alloy test samples fabricated by wire arc additive manufacturing". In: *Progress in Additive Manufacturing* 10.8, pp. 4675–4688.

Raghavendra Pai, K, Vijeesh Vijayan, Augustine Samuel, and **K Narayan Prabhu** (2025). "Effect of process variables on heat transfer and the product quality during layer deposition of Al4043 alloy by wire arc additive manufacturing". In: *Heat Transfer* 54.1, pp. 626–645.

Raj Ratna, Akshat, D Kamala Nathan, and **K Narayan Prabhu** (2025). "Heat Flux Transients During Friction and Underwater Friction Stir Welding of AA-6063 Plates". In: *Transactions of the Indian Institute of Metals* 78.2, p. 39.

Samuel, Augustine, KM Pranesh Rao, and **K Narayan Prabhu** (2025). "Critical Heat Transfer Coefficients for Selection of Quench Media during Heat Treatment of Steels". In: *Journal of Materials Engineering and Performance* 34.6, pp. 5327–5338.

Satyanarayan Prabhu, K Narayan (2025). "Lead-free solders for high-temperature applications". In: *Materials Research Proceedings* 55.

Vijayan, Vijeesh and **Narayan Prabhu** (2025). "Effects of Phosphorus Treatment on Cooling Behavior, Heat Transfer, Microstructure, and Mechanical Properties of Hypereutectic Al-23% Si Alloy". In: *Journal of Materials Engineering and Performance* 34.1, pp. 794–804.

Nathan, D Kamala and **K Narayan Prabhu** (2024a). "Effect of mold contour on interfacial heat transfer during solidification of AlSi11Cu3Fe alloy (ADC-12)". In: *International Journal of Metalcasting* 18.3, pp. 2133–2149.

– (2024b). "Heat Transfer During Solidification of Polyethylene Terephthalate (PET) in Injection Molding". In: *Transactions of the Indian Institute of Metals* 77.10, pp. 3059–3065.

– (2024c). "Polymer/mold interfacial heat transfer during injection molding". In: *Polymer Engineering & Science* 64.2, pp. 888–900.

– (2024d). "Wettability of polyethylene terephthalate melt on steel substrates and the effect of cooling rate on polymer amorphicity". In: *Journal of Applied Polymer Science* 141.42, e56097.

Pai, K Raghavendra, Vijeesh Vijayan, and **K Narayan Prabhu** (2024). "Recent challenges and advances in metal additive manufacturing: A review". In: *Materials Today: Proceedings*.

Pathumudy, Ramakrishna Devananda, Augustine Samuel, and **K Narayan Prabhu** (2024). "Thermal conformance parameters for assessment of heat transfer between similar and dissimilar metal contacts". In: *Heat Transfer* 53.5, pp. 2416–2437.

Samuel, Augustine and **K Narayan Prabhu** (2024). "The Effect of Thermal Quench Cycling on the Stability and Heat Transfer Characteristics of Transesterified-Epoxidized Used Cooking Oil Blended Quench Medium". In: *Journal of Materials Engineering and Performance* 33.9, pp. 4602–4612.

Samuel, Augustine, KM Pranesh Rao, and **K Narayan Prabhu** (2024). "A Phase Transformation Enthalpy Parameter for Modeling Quench Hardening of Steels". In: *Metallurgical and Materials Transactions A* 55.2, pp. 403–428.

Shamil, KM, D Kamala Nathan, and **KN Prabhu** (2024). "Wettability and interfacial heat transfer during solidification of Al–Si Alloy (A413) melt droplets on metallic substrates". In: *International Journal of Metalcasting* 18.1, pp. 138–146.

Samuel, Augustine, U Vignesh Nayak, KM Pranesh Rao, and **K Narayan Prabhu** (2023). "Estimation of Heat Flux Transient During Quench Hardening of Varying Diameter Steel Probes Using IHCP-Phase Transformation Coupled Model". In: *Heat Treating Conference*. Vol. 84697. ASM International, pp. 88–97.

Soni, Atul, Augustine Samuel, and **K Narayan Prabhu** (2023). "Experimental investigation of heat transfer characteristics of polyethylene glycol (PEG) based quench media for industrial heat treatment". In: *Experimental Thermal and Fluid Science* 144, p. 110865.

Agarwala, Swati and **K Narayan Prabhu** (2022). "Review of thermal characterization techniques for salt-based phase change materials". In: *Journal of Energy Storage* 46, p. 103865.

Georgy, K, Sanjay Tikale, and **K Narayan Prabhu** (2022). "Characterisation of Sn–3.5 Ag solder/Cu joint under various reflow conditions". In: *Materials Science and Technology* 38.8, pp. 458–468.

KN, Prabhu et al. (2022). "Understanding Solidification Behavior of Salt Phase Change Material with Added Carbon Nanoparticles Using Computer-Aided Cooling Curve Analysis". In: *Journal of Materials Engineering and Performance* 31.1, pp. 383–389.

Nathan, D Kamala and **K Narayan Prabhu** (2022). "Thermal resistance at the polymer/mold interface in injection molding". In: *Transactions of the Indian Institute of Metals* 75.2, pp. 307–326.

Pranesh Rao, KM and **K Narayan Prabhu** (2022). "A Novel LiNO3-Based Eutectic Salt Mixture for Industrial Heat Treatment". In: *Materials Performance and Characterization* 11.1, pp. 135–145.

Samuel, Augustine and **K Narayan Prabhu** (2022a). "Assessment of Heat transfer characteristics of transesterified waste sunflower cooking oil blends for quench hardening". In: *Journal of Materials Engineering and Performance* 31.7, pp. 5485–5503.

– (2022b). "Residual stress and distortion during quench hardening of steels: a review". In: *Journal of Materials Engineering and Performance* 31.7, pp. 5161–5188.

Shamitha, C, S Janakiraman, Sudipto Ghosh, A Venimadhav, **K Narayan Prabhu**, and S Anandhan (2022). "Synthesis and evaluation of a new gel polymer electrolyte for high-performance Li-ion batteries from electrospun nanocomposite of PVDF/Ca–Al-layered double hydroxide". In: *Journal of Materials Research* 37.22, pp. 3942–3954.

Agarwala, Swati and **K Narayan Prabhu** (2021). "A quantitative approach for thermal characterization of phase change materials". In: *Materials Performance and Characterization* 10.1, pp. 166–172.

Kalgudi, Shankarappa, GP Pavithra, **KN Prabhu**, Praveennath G Koppad, C Venkate Gowda, et al. (2021). "Effect of surface treatment on wetting behavior of copper". In: *Materials Today: Proceedings* 35, pp. 295–297.

Pathumudy, Ramakrishna Devananda and **K Narayan Prabhu** (2021). "Thermal interface materials for cooling microelectronic systems: present status and future challenges". In: *Journal of Materials Science: Materials in Electronics* 32.9, pp. 11339–11366.

Rajagopalan, Sudheer and **KN Prabhu** (2021). "Effect of carbon black and titanium dioxide dispersants on solidification of multiwall carbon nanotube–added salt-based phase change material". In: *Materials Performance and Characterization* 10.1, pp. 278–284.

Rao, KM Pranesh and **K Narayan Prabhu** (2021). "Numerical simulation to predict the effect of process parameters on hardness during martempering of AISI4140 steel". In: *Journal of Materials Engineering and Performance* 30.5, pp. 3416–3435.

Reddy, Sadhgun, **K Narayan Prabhu**, and U Vignesh Nayak (2021). "The Effect of Nanocoatings on Critical Heat Flux (CHF) under Pool Boiling Conditions". In: *Materials Performance and Characterization* 10.1, pp. 532–537.

Roy, Sridhin S, Augustine Samuel, and **K Narayan Prabhu** (2021). "Heat Transfer Characteristics and Cooling Performance of Treated Kitchen Coconut Oil". In: *Heat Treat.*

Tikale, Sanjay and **K Narayan Prabhu** (2021). "Bond shear strength of Al2O3 nanoparticles reinforced 2220-capacitor/SAC305 solder interconnects reflowed on bare and Ni-coated copper substrate". In: *Journal of Materials Science: Materials in Electronics* 32.3, pp. 2865–2886.

Vijayan, Vijeesh, M Ravi, and **K Narayan Prabhu** (2021). "Effect of Ni and Sr additions on the microstructure, mechanical properties, and coefficient of thermal expansion of Al-23% Si alloy". In: *Materials Today: Proceedings* 46, pp. 2732–2736.

Agarwala, Swati and **K Narayan Prabhu** (2020). "An experimental approach based on inverse heat conduction analysis for thermal characterization of phase change materials". In: *Thermochimica Acta* 685, p. 178540.

Mazumder, Anik, Nagaraj Alangi, Sanjay Sethi, **K Narayan Prabhu**, and Jaya Mukherjee (2020). "Study on wettability of plasma spray coated oxide ceramic for hydrophobicity". In: *Surfaces and Interfaces* 20, p. 100591.

Panikar, Ramanandan Santhanu, V Amogha Skanda, Sanjay Tikale, and **K Narayan Prabhu** (2020). "The effect of reflow temperature on time at the end of gravity zone (Tgz) of Sn-3.8 Ag-0.7 Cu solder alloy". In: *Materials Performance and Characterization* 9.1, pp. 190–203.

Pranesh Rao, KM and **K Narayan Prabhu** (2020). "Assessment of cooling performance of neem oil for distortion control in heat treatment of steel". In: *Journal of Materials Engineering and Performance* 29.9, pp. 6033–6043.

Prathviraj, MP, Augustine Samuel, and **K Narayan Prabhu** (2020). "Reprocessed waste sunflower cooking oil as quenchant for heat treatment". In: *Journal of Cleaner Production* 269, p. 122276.

Rao, KM Pranesh and **K Narayan Prabhu** (2020a). "A comparative study on cooling performance of hot oil and molten salt quench media for industrial heat treatment". In: *Journal of Materials Engineering and Performance* 29.6, pp. 3494–3501.

– (2020b). "Compositional and bath temperature effects on heat transfer during quenching in molten NaNO3–KNO3 salt mixtures". In: *Journal of Materials Engineering and Performance* 29.3, pp. 1860–1868.

Tikale, Sanjay and **K Narayan Prabhu** (2020a). "Development of low-silver content SAC0307 solder alloy with Al2O3 nanoparticles". In: *Materials Science and Engineering: A* 787, p. 139439.

– (2020b). "Performance and reliability of Al2O3 nanoparticles doped multicomponent Sn-3.0 Ag-0.5 Cu-Ni-Ge solder alloy". In: *Microelectronics Reliability* 113, p. 113933.

Agarwala, Swati and **Narayan K Prabhu** (2019). "Characterization of metals and salts-based thermal energy storage materials using energy balance method". In: *Heat Transfer—Asian Research* 48.5, pp. 1889–1898.

Mathews, Nidhin George, KM Pranesh Rao, U Vignesh Nayak, and **K Narayan Prabhu** (2019). "Comparison of cooling behaviour of carbon steels in polymer, oil and carbonated quench media". In: *Transactions of the Indian Institute of Metals* 72.6, pp. 1405–1408.

Nayak, U Vignesh and **K Narayan Prabhu** (2019). "Heat Transfer During Quenching in Graphene and Multiwall Carbon Nanotubes Nanofluids Under Agitated Quench Conditions". In: *Journal of Nanofluids* 8.6, pp. 1222–1239.

Nayak, UV and **KN Prabhu** (2019). "Quench Cooling performance–hardness correlation for AISI 1045 and 1090 steels". In: *Materials Performance and Characterization* 8.1, pp. 135–150.

Pranesh Rao, KM and **K Narayan Prabhu** (2019). "A Comparative Study on Cooling Performance of Hot Oil and Molten Salt Media for Industrial Heat Treatment". In: *HT2019*. ASM International, pp. 322–328.

Rao, PKM and **NK Prabhu** (2019). "A comparative study on cooling performance of hot oil and molten salt media for industrial heat treatment". In.

Satyanarayan, MC Kumarswamy, and **KN Prabhu** (2019). "The Effect of Thermal Ageing on Solder/Substrate Interfacial Microstructures During Reflow of Sn–37Pb and Sn–3Ag–0.5 Cu". In: *Transactions of the Indian Institute of Metals* 72.6, pp. 1545–1549.

Sona, Mrunali, Sanjay Tikale, and **Narayan Prabhu** (2019). "Wettability, interfacial intermetallic growth and joint shear strength of eutectic Sn–Cu solder reflowed on bare and nickel-coated copper substrates". In: *Transactions of the Indian Institute of Metals* 72.6, pp. 1579–1583.

Sudheer, R and **KN Prabhu** (2019). "Assessment of PCM-container interfacial heat transfer using a hot/cold probe technique". In.

Tikale, Sanjay and **K Narayan Prabhu** (2019). "The effect of multi-walled carbon nanotubes reinforcement and multiple reflow cycles on shear strength of SAC305 lead-free solder alloy". In: *Materials Performance and Characterization* 8.3, pp. 421–433.

Vignesh, Nayak, **Prabhu Narayan**, et al. (2019). "Heat transfer during quenching in graphene and multiwall carbon nanotubes nanofluids under agitated quench conditions". In.

Agarwala, Swati and **K Narayan Prabhu** (2018). "Assessment of solidification parameters of salts and metals for thermal energy storage applications using IHCP-Energy balance combined technique". In: *Transactions of the Indian Institute of Metals* 71.11, pp. 2677–2680.

Ballal, Nidambur Vasudev, Carmen Maria Ferrer-Luque, Mrunali Sona, **K Narayan Prabhu**, Teresa Arias-Moliz, and Pilar Baca (2018). "Evaluation of final irrigation regimens with maleic acid for smear layer removal and wettability of root canal sealer". In: *Acta Odontologica Scandinavica* 76.3, pp. 199–203.

Narayan Prabhu, K et al. (2018). "Assessment of the Effect of Addition of Nano Particles on Thermal Energy Storage Parameters of Phase Change Materials". PhD thesis. National Institute of Technology Karnataka, Surathkal.

Nayak, U Vignesh and **K Narayan Prabhu** (2018). "Heat Transfer during Quenching of Inconel Probe in Non-Edible Vegetable Oils". In: *HTM Journal of Heat Treatment and Materials* 73.5, pp. 283–291.

Nayak, UV and **KN Prabhu** (2018). "Effect of section thickness on heat transfer during quenching in vegetable oils". In: *Materials Performance and Characterization* 7.1, pp. 384–396.

Samuel, Augustine, Sanjay Tikale, and **K Narayan Prabhu** (2018). "Assessment of the performance of Sn–3.5 Ag/Cu solder joint under multiple reflows, thermal cycling and corrosive environment". In: *Transactions of the Indian Institute of Metals* 71.11, pp. 2687–2691.

Tikale, Sanjay and **K Narayan Prabhu** (2018a). "Effect of multiple reflow cycles and Al2O3 nanoparticles reinforcement on performance of SAC305 lead-free solder alloy". In: *Journal of Materials Engineering and Performance* 27.6, pp. 3102–3111.

– (2018b). "Performance of MWCNT-reinforced SAC0307/Cu solder joint under multiple reflow cycles". In: *Transactions of the Indian Institute of Metals* 71.11, pp. 2693–2698.

Vijayan, Vijeesh and **K Narayan Prabhu** (2018). "The effect of Sr modification on thermal diffusivity of Al–8Si alloy". In: *International Journal of Cast Metals Research* 31.2, pp. 80–86.

Vijeesh, V and **K Narayan Prabhu** (2018). "Thermal analysis of cerium-treated Chill-Cast Al-23 Si alloy". In: *Journal of Materials Engineering and Performance* 27.11, pp. 5656–5664.

Nayak, U Vignesh and **K Narayan Prabhu** (2017). "Comparative study of the effect of section thickness of steel during quenching in neem and mineral oil". In: *Heat Treat 2017: Proceedings from the 29th Heat Treating Society Conference and Exposition*. ASM International.

Nayak, UV, G Ramesh, and **KN Prabhu** (2017). "Assessment of spatiotemporal heat flux during quenching in TiO2 and AlN nanofluids". In: *Materials Performance and Characterization* 6.5, pp. 745–756.

Pranesh Rao, KM and **K Narayan Prabhu** (2017). "Effect of bath temperature on cooling performance of molten eutectic NaNO3-KNO3 quench medium for martempering of steels". In: *Metallurgical and Materials Transactions A* 48.10, pp. 4895–4904.

Pranesh Rao, KM and **Narayan Prabhu** (2017). "Estimation of Spatially Dependent Heat Flux Transients during Quenching of Inconel Probe in Molten Salt Bath". In: *Materials Performance and Characterization* 6.5, pp. 733–744.

Sona, Mrunali and **K Narayan Prabhu** (2017). "The effect of wetting gravity regime on shear strength of SAC and Sn-Pb solder Lap joints". In: *Journal of Materials Engineering and Performance* 26.9, pp. 4177–4187.

Sudheer, R and **KN Prabhu** (2017). "Cooling curve analysis of micro-and nanographite particle-embedded salt-PCMs for thermal energy storage applications". In: *Journal of Materials Engineering and Performance* 26.8, pp. 4040–4045.

Tikale, Sanjay, Mrunali Sona, and **K Narayan Prabhu** (2017). "Effect of cooling rate on joint shear strength of Sn-9Zn lead-free solder alloy reflowed on copper substrate". In: *Materials Performance and Characterization* 6.1, pp. 46–54.

Vignesh Nayak, U and **K Narayan Prabhu** (2017). "Comparative Study of the Effect of Section Thickness of Steel during Quenching in Neem and Mineral Oil". In: *Heat Treating Conference*. Vol. 84130. ASM International, pp. 394–402.

Vijeesh, V and **K Narayan Prabhu** (2017). "The effect of chilling and Ce addition on the microstructure and mechanical properties of Al-23Si alloy". In: *Journal of Materials Engineering and Performance* 26.1, pp. 343–349.

Narayan Prabhu, K et al. (2016). "Solidification Analyses and Heat Treatment of Modified And Refined Al-Si Alloys-A Study". PhD thesis.

Nayak, U Vignesh and **K Narayan Prabhu** (2016). "Heat transfer and quench performance of aqueous CuO nanofluids during immersion quenching". In: *International Journal of Microstructure and Materials Properties* 11.3-4, pp. 186–202.

Nayak, U Vignesh, KM Pranesh Rao, M Ashwin Pai, and **K Narayan Prabhu** (2016). "Carbonated aqueous media for quench heat treatment of steels". In: *Journal of Materials Engineering and Performance* 25.9, pp. 3802–3810.

Nayak, Vignesh U and **Narayan K Prabhu** (2016). "Wetting behavior and heat transfer of aqueous graphene nanofluids". In: *Journal of Materials Engineering and Performance* 25.4, pp. 1474–1480.

Ramesh, G and **K Narayan Prabhu** (2016). "Effect of polymer concentration on wetting and cooling performance during immersion quenching". In: *Metallurgical and Materials Transactions B* 47.2, pp. 859–881.

Ramesh, G and **K Narayan Prabhu** (2016). "Wetting and cooling performance of vegetable oils during quench hardening". In: *Heat Transfer—Asian Research* 45.4, pp. 342–357.

Sona, Mrunali and **K Narayan Prabhu** (2016a). "Assessment of Joint Reliability of Sn–2.5 Ag–0.5 Cu Solder/Cu as a Function of Reflow Time". In: *Transactions of the Indian Institute of Metals* 69.4, pp. 941–947.

– (2016b). "Effect of reflow time on wetting behavior, microstructure evolution, and joint strength of Sn-2.5 Ag-0.5 Cu solder on bare and nickel-coated copper substrates". In: *Journal of Electronic Materials* 45.7, pp. 3744–3758.

Sudheer, R and **KN Prabhu** (2016). "A Computer Aided Cooling Curve Analysis method to study phase change materials for thermal energy storage applications". In: *Materials & Design* 95, pp. 198–203.

Sudheer, R, V Vijeesh, and **KN Prabhu** (2016). "Effect of Ce melt treatment on solidification path of ZA8 alloy". In: *IOP Conference Series: Materials Science and Engineering*. Vol. 117. 1. IOP Publishing, p. 012035.

Vignesh, Nayak, **Prabhu Narayan**, et al. (2016). "Heat transfer and quench performance of aqueous CuO nanofluids during immersion quenching". In.

Vijayan, Vijeesh and **K Narayan Prabhu** (2016). "The effect of simultaneous refinement and modification by cerium on microstructure and mechanical properties of Al-8% Si alloy". In: *International Journal of Cast Metals Research* 29.6, pp. 345–349.

Vijeesh, V and **K Narayan Prabhu** (2016). "Dept. of Metallurgical and Materials Engineering, National Institute of Technology Karnataka, Surathkal, Srinivasnagar, Mangalore 575025, India, e-mail: prabhukn_2002@ yahoo. co. in". In: *Light Metals 2015*, p. 403.

Vijeesh, V and **KN Prabhu** (2016). "Effect of cerium addition on casting/chill interfacial heat flux and casting surface profile during solidification of Al-14% Si alloy". In: *IOP Conference Series: Materials Science and Engineering*. Vol. 117. 1. IOP Publishing, p. 012034.

Midhun Krishnan, P, Sanil Hari, E Jayakumar, TPD Rajan, and **K Narayan Prabhu** (2015). "Centrifugal casting and characterisation of primary silicon and Mg2Si dispersed aluminium functionally graded materials". In: *Materials Science Forum*. Vol. 830. Trans Tech Publications Ltd, pp. 11–14.

Pai, Ashwin, U Vignesh Nayak, KM Pranesh Rao, and **K Narayan Prabhu** (2015). "Wetting kinetics and cooling performance of PAG polymer quenchants". In: *Materials Science Forum*. Vol. 830. Trans Tech Publications Ltd, pp. 156–159.

Prabhu, KN et al. (2015). "Characterization of Metal-PCMs for Thermal energy Storage Applications." In: *Materials Science Forum*.

Pranesh Rao, KM and **K Narayan Prabhu** (2015). "Assessment of wetting kinematics and cooling performance of select vegetable oils and mineral-vegetable oil blend quench media". In: *Materials Science Forum*. Vol. 830. Trans Tech Publications Ltd, pp. 160–163.

Ramesh, G and **K Narayan Prabhu** (2015). "Experimental and numerical heat transfer studies on quenching of Inconel 600 probe". In: *Heat and Mass Transfer* 51.1, pp. 11–21.

Ramesh, G and **K Narayan Prabhu** (2015). "Comparative study of wetting and cooling performance of polymer–salt hybrid quench medium with conventional quench media". In: *Experimental Heat Transfer* 28.5, pp. 464–492.

Satyanarayan, Satyanarayan and **KN Prabhu** (2015). "Solder joint reliability of Sn-Cu and Sn-Ag-Cu lead-free solder alloys solidified on copper substrates with different surface roughnesses". In: *Materials Science Forum*. Vol. 830. Trans Tech Publications Ltd, pp. 265–269.

Sona, Mrunali and **K Narayan Prabhu** (2015a). "Spreading behaviour and joint reliability of Sn–0.3 Ag–0.7 Cu lead-free solder alloy on nickel coated copper substrate as a function of reflow time". In: *Transactions of the Indian Institute of Metals* 68.6, pp. 1027–1031.

– (2015b). "Wetting kinetics and joint strength of Sn-0.3 Ag-0.7 Cu lead-free solder alloy on copper substrate as a function of reflow time". In: *Materials Science Forum*. Vol. 830. Trans Tech Publications Ltd, pp. 286–289.

Sudheer, R and **K Narayan Prabhu** (2015). "Characterization of metal-PCMs for thermal energy storage applications". In: *Materials Science Forum*. Vol. 830. Trans Tech Publications Ltd, pp. 505–508.

Tikale, Sanjay, Mrunali Sona, and **K Narayan Prabhu** (2015). "Wettability and bond shear strength of Sn-9Zn lead-free solder alloy reflowed on copper substrate". In: *Materials Science Forum*. Vol. 830. Trans Tech Publications Ltd, pp. 215–218.

Vignesh Nayak, U and **K Narayan Prabhu** (2015). "Heat transfer during immersion quenching in MWCNT nanofluids". In: *Materials Science Forum*. Vol. 830. Trans Tech Publications Ltd, pp. 172–176.

Vijayan, V and **K Narayan Prabhu** (2015). "Effect of chilling and cerium addition on microstructure and cooling curve parameters of Al–14% Si alloy". In: *Canadian Metallurgical Quarterly* 54.1, pp. 66–76.

Vijayan, Vijeesh and **K Narayan Prabhu** (2015). "Assessment of latent heat and solid fraction of Al-22Si alloy using Newtonian and Fourier analysis techniques". In: *Materials Science Forum*. Vol. 830. Trans Tech Publications Ltd, pp. 321–324.

Vijeesh, V and **K Narayan Prabhu** (2015). "The effect of cooling rate and cerium melt treatment on thermal analysis parameters and microstructure of hypoeutectic Al-Si alloy". In: *Light Metals 2015*. Springer International Publishing Cham, pp. 403–407.

Amarnadh, SV and **K Narayan Prabhu** (2014). "Experimental Investigation of Superhydrophobicity on Three Scale Hierarchical Surface Structures". In: *Journal of Surfaces and Interfaces of Materials* 2.3, pp. 244–248.

Bhat, Kiran N, **KN Prabhu**, and Satyanarayan (2014). "Effect of reflow temperature and substrate roughness on wettability, IMC growth and shear strength of SAC387/Cu bonds". In: *Journal of Materials Science: Materials in Electronics* 25.2, pp. 864–872.

Devananda, Ramakrishna and **K Narayan Prabhu** (2014). "Determination of cooling performance of nanofluids for use in transformers by an instrumented copper Probe". In: *Journal of Nanofluids* 3.1, pp. 38–43.

Harishankar, R and **KN Prabhu** (2014). "MWCNT Nanofluid—An Alternative to Silicone Grease Based Thermal Interface Materials". In: *Journal of Nanofluids* 3.2, pp. 127–132.

Narayan, Prabhu, G Ramesh, et al. (2014). "A dimensional parameter for prediction of cooling performance of quenchants". In.

Narayan Prabhu, K et al. (2014). "Review of microstructure evolution in hypereutectic Al–Si alloys and its effect on wear properties". In: *Transactions of the Indian Institute of Metals* 67.1, pp. 1–18.

Narayana, Swamy R and **Prabhu K Narayan** (2014). "Effect of load and interface materials on thermal contact resistance between similar and dissimilar materials". In: *Applied Mechanics and Materials* 592, pp. 1493–1497.

Prabhu, K Narayan and G Ramesh (2014). "A Dimensional Parameter for Prediction of Cooling Performance of Quenchants". In: *Materials Performance and Characterization* 3.4, pp. 242–255.

Raghunathan, Raghav, **K Narayan Prabhu**, and Trisha G Hegde (2014). "Two Parameter Weibull Analysis of the Effect of Chemical Modification of Al–7si–0.3 Mg Alloy on Ultimate Tensile Strength". In: *Transactions of the Indian Institute of Metals* 67.6, pp. 997–1000.

Ramesh, G and **K Narayan Prabhu** (2014a). "Effect of thermal conductivity and viscosity on cooling performance of liquid quench media". In: *International Heat Treatment and Surface Engineering* 8.1, pp. 24–28.

– (2014b). "Spatial dependence of heat flux transients and wetting behavior during immersion quenching of inconel 600 probe in brine and polymer media". In: *Metallurgical and materials transactions B* 45.4, pp. 1355–1369.

Ramesh, G and **K Narayan Prabhu** (2014a). "Assessment of axial and radial heat transfer during immersion quenching of Inconel 600 probe". In: *Experimental thermal and fluid science* 54, pp. 158–170.

– (2014b). "Wetting kinetics, kinematics and heat transfer characteristics of pongamia pinnata vegetable oil for industrial heat treatment". In: *Applied thermal engineering* 65.1-2, pp. 433–446.

Siddique, AB and **KN Prabhu** (2014). "Assessment of wetting characteristics and cooling performance of aluminium and MWCNT nanofluids in PC environment". In: *Journal of Nanofluids* 3.3, pp. 189–199.

Sona, Mrunali and **K Narayan Prabhu** (2014). "The effect of reflow time on reactive wetting, evolution of interfacial IMCs and shear strength of eutectic Sn–Cu solder alloy". In: *Journal of Materials Science: Materials in Electronics* 25.3, pp. 1446–1455.

Tiwary, Vivek and **Narayan K Prabhu** (2014). "Cooling performance of select mineral oil and polymer quenchants". In: *Materials Performance and Characterization* 3.4, pp. 271–282.

Vijeesh, V and **K Narayan Prabhu** (2014). "Computer aided cooling curve analysis and microstructure of cerium added hypereutectic Al–Si (LM29) alloy". In: *Transactions of the Indian Institute of Metals* 67.4, pp. 541–549.

Ballal, Nidambur Vasudev, Adlyn Tweeny, Khaled Khechen, **K Narayan Prabhu**, Franklin R Tay, et al. (2013). "Wettability of root canal sealers on intraradicular dentine treated with different irrigating solutions". In: *Journal of dentistry* 41.6, pp. 556–560.

Bhagawath, Pradeep, **KN Prabhu**, et al. (2013). "Wetting behavior of reactive and non-reactive wetting of liquids on metallic substrates". In: *Proceedings of World Academy of Science, Engineering and Technology*. 73. World Academy of Science, Engineering and Technology (WASET), p. 978.

Fernandes, Peter and **K Narayan Prabhu** (2013). "Experimental investigation of contact angle and quench severity of mineral oil and palm oil blends". In: *Journal of Materials Science and Engineering. B* 3.2B, p. 90.

Narayan, S and **KN Prabhu** (2013). "Comparison of spreading behaviour and interfacial microstructure in Sn–0· 7Cu, Sn–0· 3Ag–0· 7Cu and Sn–2· 5Ag–0· 5Cu lead free solder alloys on Fe–42Ni substrate". In: *Materials Science and Technology* 29.4, pp. 464–473.

Prabhu, KN et al. (2013a). "Study of Reactive Wetting of Sn-0.7 Cu and Sn-0.3 Ag-0.7 Cu Lead Free Solders during Solidification on Nickel Coated Al Substrates". In: *Proceedings of World Academy*

of Science, Engineering and Technology. 73. World Academy of Science, Engineering and Technology (WASET), p. 952.

Prabhu, KN et al. (2013b). "Wetting behavior of lead-free solders on copper substrates". In: *National Conference on Challenges in Research & Technology in the Coming Decades (CRT 2013)*. IET, pp. 1–5.

Prabhu, KN, M Varun, and Satyanarayan (2013). "Effect of purging gas on wetting behavior of Sn-3.5 Ag lead-free solder on nickel-coated aluminum substrate". In: *Journal of materials engineering and performance* 22.3, pp. 723–728.

Ramesh, G and **K Narayan Prabhu** (2013). "Wetting kinematics and spreading behaviour of water based aluminium nanofluids during immersion quenching". In: *International Heat Treatment and Surface Engineering* 7.2, pp. 74–78.

Ramesh, G and **K Narayan Prabhu** (2013a). "Dimensionless cooling performance parameter for characterization of quench media". In: *Metallurgical and Materials Transactions B* 44.4, pp. 797–799.

– (2013b). "The effect of addition of copper nanoparticles on wetting behaviour of water during immersion quenching". In: *Transactions of the Indian Institute of Metals* 66.4, pp. 375–379.

Ramesh, G and **KN Prabhu** (2013). "Determination of multiple heat flux transients during quenching of inconel 600 probe". In.

Satyanarayan and **KN Prabhu** (2013a). "Comparison of spreading behaviour and interfacial microstructure in Sn-0.7 Cu, Sn-0.3 Ag-0.7 Cu and Sn-2.5 Ag-0.5 Cu lead free solder alloys on Fe-42Ni substrate (vol 29, pg 464, 2013)". In: *MATERIALS SCIENCE AND TECHNOLOGY* 29.5, pp. 636–636.

– (2013b). "Reactive wetting of Sn–2.5 Ag–0.5 Cu solder on copper and silver coated copper substrates". In: *Journal of Materials Science: Materials in Electronics* 24.5, pp. 1714–1719.

– (2013c). "Solder joint reliability of Sn–0· 7Cu and Sn–0· 3Ag–0· 7Cu lead-free solder alloys solidified on copper substrates with different surface roughnesses". In: *Materials Science and Technology* 29.12, pp. 1430–1440.

– (2013d). "Spreading behavior and evolution of IMCs during reactive wetting of SAC solders on smooth and rough copper substrates". In: *Journal of electronic materials* 42.8, pp. 2696–2707.

Siddique, AB and **KN Prabhu** (2013). "Replacement of heat sink fan by nanocoolants for enhancement of CPU efficiency". In: *National Conference on Challenges in Research & Technology in the Coming Decades (CRT 2013)*. IET, pp. 1–7.

Sona, Mrunali and **KN Prabhu** (2013). "Review on microstructure evolution in Sn–Ag–Cu solders and its effect on mechanical integrity of solder joints". In: *Journal of Materials Science: Materials in Electronics* 24.9, pp. 3149–3169.

Vijeesh, V and **KN Prabhu** (2013). "The effect of strontium modification on casting/chill interfacial heat flux and casting surface profile during solidification of Al-7Si alloy". In: *National Conference on Challenges in Research & Technology in the Coming Decades (CRT 2013)*. IET Stevenage UK, pp. 3–43.

Athreya, CN, VP Mahesh, M Brahmakumar, TPD Rajan, **K Narayan Prabhu**, BC Pai, RK Gupta, and P Ramkumar (2012). "Equal channel angular pressing of aluminum-alumina in situ metal matrix composite". In: *Materials Science Forum*. Vol. 710. Trans Tech Publications Ltd, pp. 247–252.

Jayananda and **K Narayan Prabhu** (2012). "Assessment of Heat Transfer During Solidification of Al–22% Si Alloy by Inverse Analysis and Surface Roughness Based Predictive Model". In: *Transactions of the Indian Institute of Metals* 65.6, pp. 539–543.

Narayan, Prabhu, S Hegde, et al. (2012). "Effect of chemical modification of Al-Si alloys on thermal diffusivity and contact heat transfer at the casting-chill interface". In.

Nayak, Vignesh U, **K Narayan Prabhu**, Nicole Stanford, and Satyanarayan (2012). "Wetting behavior and evolution of microstructure of Sn–3.5 Ag solder alloy on electroplated 304 stainless steel substrates". In: *Transactions of the Indian Institute of Metals* 65.6, pp. 713–717.

Prabhu, K Narayan (2012). "Nanofluids". In.

Prabhu, KN, Parashuram Deshapande, et al. (2012). "Effect of cooling rate during solidification of Sn–9Zn lead-free solder alloy on its microstructure, tensile strength and ductile–brittle transition temperature". In: *Materials Science and Engineering: A* 533, pp. 64–70.

Raghunandan, S, Jasim Akber Hyder, TPD Rajan, **K Narayan Prabhu**, and BC Pai (2012). "Processing of primary silicon and Mg2Si reinforced hybrid functionally graded aluminum composites by centrifugal casting". In: *Materials Science Forum*. Vol. 710. Trans Tech Publications Ltd, pp. 395–400.

Ramesh, G and **K Narayan Prabhu** (2012). "Thermal analysis and microstructure of ZA8 alloy solidifying against chills". In: *Transactions of the Indian Institute of Metals* 65.6, pp. 719–723.

Ramesh, G and **KN Prabhu** (2012a). "Cooling characteristics of liquid quenchants for heat treatment of castings". In: *Indian Foundry J* 58.12, pp. 23–29.

– (2012b). "Development of clay based nanofluids for quenching". In.

– (2012c). "Effect of quench probe material and section size on cooling severity". In.

– (2012d). "Heat transfer at the casting/chill interface during solidification of commercially pure Zn and Zn base alloy (ZA8)". In: *International Journal of Cast Metals Research* 25.3, pp. 160–164.

Satyanarayan and **KN Prabhu** (2012). "Effect of temperature and substrate surface texture on wettability and morphology of IMCs between Sn–0.7 Cu solder alloy and copper substrate". In: *Journal of Materials Science: Materials in Electronics* 23.9, pp. 1664–1672.

Satyanarayan, Satyanarayan and **KN Prabhu** (2012). "Wetting characteristics of Sn-0.7 Cu lead-free solder alloy on copper substrates". In: *Materials Science Forum*. Vol. 710. Trans Tech Publications Ltd, pp. 569–574.

Gopalan, R and **Narayan K Prabhu** (2011). "Oxide bifilms in aluminium alloy castings–a review". In: *Materials Science and Technology* 27.12, pp. 1757–1769.

Padaki, Mahesh, Arun M Isloor, Ganesh Belavadi, and **K Narayan Prabhu** (2011). "Preparation, characterization and performance study of poly (isobutylene-alt-maleic anhydride)[PIAM] and polysulfone [PSf] composite membranes before and after alkali treatment". In: *Industrial & engineering chemistry research* 50.11, pp. 6528–6534.

Padaki, Mahesh, Arun M Isloor, Jenifer Fernandes, and **K Narayan Prabhu** (2011). "New polypropylene supported chitosan NF-membrane for desalination application". In: *Desalination* 280.1-3, pp. 419–423.

Prabhu, KN (2011). *ASTM Special Technical Publication: Overview*.

Prabhu, KN et al. (2011). "Reactive wetting, evolution of interfacial and bulk IMCs and their effect on mechanical properties of eutectic Sn–Cu solder alloy". In: *Advances in Colloid and Interface Science* 166.1-2, pp. 87–118.

Prabhu, KN and Imtiyaz Ali (2011). "Comparison of Grossmann and lumped heat capacitance methods for assessment of heat transfer characteristics of quench media". In: *International Heat Treatment and Surface Engineering* 5.1, pp. 41–46.

Prabhu, KN and S Hegde (2011a). "Effect of modification melt treatment and chilling on eutectic arrest temperature and time during solidification of A357 alloy". In: *Materials Science and Technology* 27.8, pp. 1353–1356.

– (2011b). "Heat transfer during solidification of chemically modified Al–Si alloys around a copper chill". In: *Materials Science and Technology* 27.11, pp. 1664–1668.

Rajesh, E and **K Prabhu** (2011). "Enhancement of heat transfer characteristics of transformer oil by addition of aluminium nanoparticles". In: *Journal of ASTM International* 8.2, JAI103354.

Ramesh, G and **K Narayan Prabhu** (2011). "Characterisation of water base copper nanoquenchants by standard cooling curve analysis". In: *International Heat Treatment and Surface Engineering* 5.4, pp. 165–170.

Ramesh, Gopalan and Narayan Kotekar Prabhu (2011). "Review of thermo-physical properties, wetting and heat transfer characteristics of nanofluids and their applicability in industrial quench heat treatment". In: *Nanoscale research letters* 6.1, p. 334.

Satyanarayan and **KN Prabhu** (2011). "Wetting behaviour and interfacial microstructure of Sn–Ag–Zn solder alloys on nickel coated aluminium substrates". In: *Materials Science and Technology* 27.7, pp. 1157–1162.

Kumar, Girish and **K Prabhu** (2010). "Wetting behavior of solders". In: *Journal of ASTM International* 7.5, JAI103055.

Nyamannavar, Shankargoud and **K Narayan Prabhu** (2010). "Experimental models for assessment of interfacial heat transfer in dip soldering". In: *Advanced Materials Research* 83, pp. 1228–1235.

Prabhu, K et al. (2010). "Wetting Behaviour and Evolution of Microstructure of Sn–Ag–Zn Solders on Copper Substrates with Different Surface Textures". In: *Journal of ASTM International* 7.9, JAI103052.

Prabhu, KN and G Kumar (2010). "Determination of spread activation energy and assessment of wetting behavior of solders on metallic substrates". In.

Jagannath, Vaishali and **K Prabhu** (2009). "Severity of quenching and kinetics of wetting of nanofluids and vegetable oils". In: *Journal of ASTM International* 6.3, JAI101800.

Narayan, Prabhu K, Shiva Krishna, and Peter Fernandes (2009). "Assessment of Quench Severity of Vegetable Oil Blends for Heat Treatment of Steels." In: *CURIE Journal* 2.2.

Nyamannavar, S and **KN Prabhu** (2009). "Thermal contact at solder/substrate interfaces during solidification". In: *Materials Science and Technology* 25.6, pp. 707–710.

Prabhu, K and Peter Fernandes (2009). "Heat transfer during quenching and assessment of quench severity—a review". In: *Journal of ASTM International* 6.1, JAI101784.

Prabhu, K Narayan, Peter Fernades, and Girish Kumar (2009). "Effect of substrate surface roughness on wetting behaviour of vegetable oils". In: *Materials & design* 30.2, pp. 297–305.

Prasanna, HU, KR Udupa, and **KN Prabhu** (2009). "Investigation into creep behaviour of Sn-40% Pb alloy using impression creep method". In.

Surendranathan, AO, **K Narayan Prabhu**, and HV Sudhaker Nayak (2009). "Assessment of corrosion behavior of ductile irons by factorial experiments". In: *Journal of materials engineering and performance* 18.9, pp. 1241–1247.

Alegavi, S and **KN Prabhu** (2008). "Eco-Friendly Quenchants for Heat Treatment of Castings". In: *INDIAN FOUNDRY JOURNAL* 54.1, p. 33.

Fernandes, Peter and **K Narayan Prabhu** (2008). "Comparative study of heat transfer and wetting behaviour of conventional and bioquenchants for industrial heat treatment". In: *International Journal of Heat and Mass Transfer* 51.3-4, pp. 526–538.

Hegde, Sathyapal and **K Narayan Prabhu** (2008). "Modification of eutectic silicon in Al–Si alloys". In: *Journal of materials science* 43.9, pp. 3009–3027.

Nyamannavar, S, M Ravi, and **KN Prabhu** (2008). "Constitutional undercooling and growth of globuletic particle". In.

Nyamannavar, Shankargoud and **K Narayan Prabhu** (2008). "Heat flux transients at the solder/substrate interface in dip soldering". In: *Transactions of the Indian Institute of Metals* 61.4, pp. 279–282.

Prabhu, K Narayan and Peter Fernades (2008). "Nanoquenchants for industrial heat treatment". In: *Journal of Materials Engineering and Performance* 17.1, pp. 101–103.

Sujaya, C, HD Shashikala, G Umesh, **K Narayan Prabhu**, and Sathyapal Hegde (2008). "Microhardness of laser ablated alumina coating on Ti-6Al-4V". In: *Transactions of the Indian Institute of Metals* 61.2, pp. 99–101.

Biju, K, **KN Prabhu**, and KR Udupa (2007). "Heat Flow Simulation and Evolution of Microstructure in Welding of Rail Steel". In: *INDIAN WELDING JOURNAL* 40.3, p. 21.

Chellaih, Titus, Girish Kumar, and **K Narayan Prabhu** (2007). "Effect of thermal contact heat transfer on solidification of Pb–Sn and Pb-free solders". In: *Materials & design* 28.3, pp. 1006–1011.

Fernandes, Peter and **K Narayan Prabhu** (2007). "Effect of section size and agitation on heat transfer during quenching of AISI 1040 steel". In: *Journal of Materials Processing Technology* 183.1, pp. 1–5.

Kumar, Girish, Sathyapal Hegde, and **K Narayan Prabhu** (2007). "Heat transfer and solidification behaviour of modified A357 alloy". In: *Journal of Materials Processing Technology* 182.1-3, pp. 152–156.

Kumar, Girish and **K Narayan Prabhu** (2007). "Review of non-reactive and reactive wetting of liquids on surfaces". In: *Advances in colloid and interface science* 133.2, pp. 61–89.

Prabhu, K Narayan and Peter Fernandes (2007a). "Determination of wetting behavior, spread activation energy, and quench severity of bioquenchants". In: *Metallurgical and Materials Transactions B* 38.4, pp. 631–640.

– (2007b). "Effect of surface roughness on metal/quenchant interfacial heat transfer and evolution of microstructure". In: *Materials & design* 28.2, pp. 544–550.

Rajan, TPD, **K Narayan Prabhu**, RM Pillai, and BC Pai (2007). "Solidification and casting/mould interfacial heat transfer characteristics of aluminum matrix composites". In: *Composites Science and Technology* 67.1, pp. 70–78.

Hegde, S, G Kumar, and **KN Prabhu** (2006). "Effect of section thickness and modification on thermal analysis parameters of A357 alloy". In: *International Journal of Cast Metals Research* 19.4, pp. 254–258.

Kumar, Nilesh, Sathyapal Hegde, Girish Kumar, and **K Narayan Prabhu** (2006). "Effect of Modification Melt Treatment and Cooling Rate on NDT Parameters of Al-13% Si Alloy". In: *Indian Foundry Journal* 52.1, pp. 25–32.

Nyamannavar, Shankargoud, M Ravi, **Prabhu Narayan**, et al. (2006). "Microstructure evolution in AI-7Si-0.3 Mg alloy during partial melting and solidification from melt: A comparison". In.

Prabhu, KN and P Hemanna (2006). "Heat transfer during quenching of modified and unmodified gravity die-cast A357 cylindrical bars". In: *Journal of materials engineering and performance* 15.3, pp. 311–315.

Subramanya, PK, S Hegde, and **KN Prabhu** (2006). "Effect of volume fraction and particle size of reinforcement on thermal analysis and heat transfer parameters of gravity die cast hypereutectic Al-22% SI alloy matrix composites". In.

Hegde, Sathyapal and **K Narayan Prabhu** (2005). "EFFECT OF Sr AND COOLING RATE ON THERMAL ANALYSIS PARAMETERS OF A 357 AND A 413 ALLOY". In: *Transactions of the Indian Institute of Metals* 58.5.

Kumar, Girish, Sathyapal Hegde, and **K Narayan Prabhu** (2005). "Mechanism & Non-Destructive Assessment of Modification of Al-Si Alloys- A Review". In: *Indian Foundry Journal* 51.5, pp. 25–40.

Prabhu, K Narayan, Bheemappa Chowdary, and N Venkataraman (2005). "Casting/mold thermal contact heat transfer during solidification of Al-Cu-Si alloy (LM 21) plates in thick and thin molds". In: *Journal of materials engineering and performance* 14.5, pp. 604–609.

Hegde, Sathyapal, Girish Kumar, and **K Narayan Prabhu** (2004). "EFFECT OF SECTION THICKNESS AND MODIFICATION MELT TREATMENT ON THERMAL ANALYSIS PARAMETERS OF A 357 ALLOY". In: *Transactions of the Indian Institute of Metals* 57.5.

Narayan Prabhu, K and KM Suresha (2004). "Effect of superheat, mold, and casting materials on the metal". In: *Journal of materials engineering and performance* 13.5, pp. 619–626.

Nyamannavar, Shankargoud, M Ravi, and **K Narayan Prabhu** (2004). "MICROSTRUCTURE EVOLUTION IN ISOTHERMALLY HELD SEMI-SOLID Al-7 Si-0. 3 Mg ALLOY". In: *Transactions of the Indian Institute of Metals* 57.5.

Prabhu, K Narayan, Rantej Bali, and Rajat Ranjan (2004). "Effect of substrate surface texture and flux coating on the evolution of microstructure during solidification of lead free Sn–3.5 Ag solder alloy". In: *Materials & design* 25.5, pp. 447–449.

Fernandes, Peter and **KN Prabhu** (2003). "Assessment of wetting characteristics and heat transfer during quenching in vegetable oils". In: *Proceedings of the National Conference on Advances in Materials & their Processing (AMTP 2003).*

Gafur, MA, M Nasrul Haque, and **K Narayan Prabhu** (2003). "Effect of chill thickness and superheat on casting/chill interfacial heat transfer during solidification of commercially pure aluminium". In: *Journal of Materials Processing Technology* 133.3, pp. 257–265.

Griffiths, WD, **K Narayan Prabhu**, CP Hallam, and R Kayikci (2003). "The deformation of the chill in experiments to determine the interfacial heat transfer coefficient during casting solidification". In: *International Journal of Cast Metals Research* 15.5, pp. 545–550.

Prabhu, K Narayan, H Mounesh, KM Suresh, and AA Ashish (2003). "Casting/mould interfacial heat transfer during solidification in graphite, steel and graphite lined steel moulds". In: *International Journal of Cast Metals Research* 15.6, pp. 565–571.

Prabhu, K Narayan and Amlan Prasad (2003). "Metal/quenchant interfacial heat flux transients during quenching in conventional quench media and vegetable oils". In: *Journal of materials engineering and performance* 12.1, pp. 48–55.

Prabhu, K Narayan and BN Ravishankar (2003). "Effect of modification melt treatment on casting/chill interfacial heat transfer and electrical conductivity of Al–13% Si alloy". In: *Materials Science and Engineering: A* 360.1-2, pp. 293–298.

Narayan Prabhu, K and AA Ashish (2002). "Inverse modeling of heat transfer with application to solidification and quenching". In: *Materials and manufacturing processes* 17.4, pp. 469–481.

Narayan Prabhu, K, ST Kumar, and N Venkataraman (2002). "Heat transfer at the metal/substrate interface during solidification of Pb-Sn solder allovs". In: *Journal of materials engineering and performance* 11.3, pp. 265–273.

Prabhu, K Narayan and WD Griffiths (2002). "One-dimensional predictive model for estimation of interfacial heat transfer coefficient during solidification of cast iron in sand mould". In: *Materials science and technology* 18.7, pp. 804–810.

Prabhu, K Narayan, ST Kumar, and N Venkataraman (2002a). "Effect of thermal contact conductance on the solidification of a Pb-Sn solder alloy". In: *Transactions of the Indian Institute of Metals* 55.6, pp. 565–568.

– (2002b). "Heat transfer at the metal/substrate interface during solidification of Pb-Sn solder alloys". In: *Journal of Materials Engineering and Performance* 11.3, pp. 265–273.

Griffiths, William and **KN Prabhu** (2001). "Metal mould interfacial heat transfer during solidification of cast iron in sand moulds". In: *Institute of Indian Foundrymen Transactions*.

Prabhu, K Narayan and WD Griffiths (2001). "Metal/mould interfacial heat transfer during solidification of cast iron in sand moulds". In: *International Journal of Cast Metals Research* 14.3, pp. 147–155.

– (2000). "Metal-mould interfacial heat transfer during solidification of cast iron against cast iron chills". In: *Proceedings of the Second International Conference on Processing Materials for Properties*, pp. 1069–1074.

Prabhu, KN and WD Griffiths (2000). "Assessment of metal/mould interfacial heat transfer during solidification of cast iron". In: *Materials science forum*. Vol. 329. Trans Tech Publications Ltd, pp. 455–460.

Narayan, Prabhu, J Campbell, et al. (1999). "Investigation of casting/chill interfacial heat transfer during solidification of Al-11% Si alloy by inverse modelling and real-time x-ray imaging". In.

Narayan Prabhu, K, S Karanth, and K Rajendra Udupa (1999). "Assessment of Degree of Modification in Al-Si Eutectic Alloy (LM6) by NDT Techniques". In: *Indian Foundry Journal* 45, TP–177.

Prabhu, K Narayan and John Campbell (1999). "Investigation of casting/chill interfacial heat transfer during solidification of Al-11% Si alloy by inverse modelling and real-time x-ray imaging". In: *International Journal of Cast Metals Research* 12.3, pp. 137–143.

Narayan Prabhu, K and N Narendra Prabhu (1998). "Modeling Thermal Behavior of Chills During Solidification of Al-Cu-Si Alloy". In: *TRANSACTIONS-AMERICAN FOUNDRYMENS SOCIETY*, pp. 707–714.

Narayan Prabhu, K, R Dodamani, H Kumar, P Kiran, and N Venkataraman (1997). "Interfacial Heat Flux Transients in Casting and Quenching". In: *INDIAN FOUNDRY JOURNAL* 43, pp. 17–23.

Prabhu, K Narayan and N Narendra Prabhu (1997). "Modeling Thermal Behavior of Chills During Solidification of Al-Cu-Si Alloy (97-05)". In: *Transactions of the American Foundrymen's Society* 105, pp. 707–714.

Prabhu, KN, SA Kumar, and N Venkataraman (1995). "Effect of Coating/Mold Wall/Casting Thickness on Heat Transfer and Solidification of Al-Cu-Si Alloy". In: *TRANSACTIONS-AMERICAN FOUNDRYMENS SOCIETY*, pp. 827–832.

– (1994). "Effect of Coating/Mold Wall/Casting Thickness on Heat Transfer and Solidification of Al-Cu-Si Alloy (LM-21) in Cast Iron Molds (94-109)". In: *Transactions of the American Foundrymen's Society* 102, pp. 827–832.

Prabhu, KN, G Srinivas, and N Vankataraman (1993). "Modeling Heat Transfer and Solidification Behavior of Gravity Diecast Al-Cu-Si Alloy (LM 21) Plates". In: *TRANSACTIONS-AMERICAN FOUNDRYMENS SOCIETY*, pp. 653–653.

Kumar, TS Prasanna and **K Narayan Prabhu** (1991). "Heat flux transients at the casting/chill interface during solidification of aluminum base alloys". In: *Metallurgical Transactions B* 22.5, pp. 717–727.

Prabhu, KN, TS Kumar, and T Ramchandran (1991). "Modeling Interfacial Heat Transfer in Die Casting". In: *Retrospective Collection*. Vol. 10. Trans Tech Publications, pp. 761–768.

Published Contributions to Academic Conferences

Prabhu, K.N., Kumar, T and Ramchandran, T (1989): Computer Controlled Data Acquisition and Analysis of Heat Transfer at the Metal/Mold Interface, Proceedings of the 37th Annual Convention of The Institute of Indian Foundrymen at New Delhi, February 1989, 143-149.

Prabhu, K.N. and Kumar, T.S.P. (1991): Modelling Heat Flow Behaviour at the Casting/Chill Interface during Solidification of Al-13.2% Si Alloy, Proceedings of the 39th Annual Convention of The Institute of Indian Foundrymen at Calcutta, February 1991, 305- 316.

Prabhu, K.N., Srinivas, G. and Venkataraman, N. (1993): Effect of Mould Parameters on Solidification Behaviour of Al-Cu-Si Alloy (LM21) in Cast Iron Moulds, Proceedings of the 41st Annual Convention of The Institute of Indian Foundrymen (IIF Transactions), at New Delhi, February 1993, 337- 350.

Prabhu, K.N., Srinivas, G. and Venkataraman, N. (1994): Heat Transfer and Solidification in Metallic Moulds, IIF Transactions, Proceedings of the 42nd Annual Convention of the Institute of Indian Foundrymen at Ahmedabad, February 1994, 253-256.

Prasad, K.R., **Prabhu, K.N.**, Prabhu, B.G. and Venkataraman, N. (1995): Preparation of Quality Manual towards ISO 9002 Certification of a Mini Steel Plant - A Case Study, IIF Transactions, Proceedings

of the 43rd Annual Convention of the Institute of Indian Foundrymen at Jamshedpur, February 1995, 321-323.

Rajan, T.P.D., **Prabhu, K.N.**, Pai, B.C. and Pillai, R.M. (1999): Casting/mould Interfacial Heat Transfer during Solidification of Aluminium Matrix Composites, Proceedings of the 6th Asian and 47th Indian Foundry Congress at Calcutta. January 1999, 119-128.

Prabhu, K.N., Fernandes, P. and Udupa, K.R. (1999): Use of Factorial Experiments in Foundry Sand Quality Control, Proceedings of the 6th Asian and 47th Indian Foundry Congress at Calcutta, January 1999, 34-38.

Prabhu, K.N. and Griffiths, W.D.(2000): Metal-Mould Interfacial Heat Transfer during Solidification of Cast Iron against Cast Iron Chills, Proceedings of the Second International Conference on Processing Materials for Properties at San Francisco, November 2000, 1067 –1074.

Prabhu, K.N. and Griffiths, W.D. (2001): Casting/mould interfacial heat transfer during solidification of cast iron, IIF Transactions, Proceedings of the 49th Annual Convention of the Institute of Indian Foundrymen at New Delhi, January 2001, 67-78.

Prabhu, K.N. and Ashish, A.A. (2002): Inverse Modelling of Heat Transfer with application to Solidification and Quenching, Proceedings of the International Conference on Advances in Materials and Materials Processing -ICAMMP 2002, at Kharagpur, Feb. 2002, 711-716.

Prabhu, K.N. and Ravishankar, B.N (2002).: Assessment of chill modification and dendrite refinement in Al-Si-Na eutectic alloys, Proceedings of the National Conference on Light Metals and Composites for Societal and Strategic Needs (LMSCCN 2002) , Trivandrum, 23-24, October 2002, 138-143.

S.Hegde, G. Kumar and **Prabhu K.N** (2003): Microstructure Control in Al-Si alloys by NDT Techniques', Proceedings of the National Conference on 'Advances in Materials & their Processing (AMTP 2003)', 22-23, December 2003, Bagalakot, 133- 138.

P. Fernandes and **Prabhu K.N.** (2003): Assessment of heat transfer during quenching in vegetable oils, Proceedings of the National Conference on 'Advances in Materials & their Processing (AMTP 2003)', 22-23, December, Bagalakot, 156-161.

Rao S.G, Pillai R.M., Rajan T.P.D., **Prabhu K.N.** and Pai B.C (2003).: Suspension behaviour of particles in metal matrix composites, Proceedings of the National Conference on 'Advances in Materials & their Processing (AMTP 2003)', 22-23, December, Bagalakot, 330-336.

Prabhu K.N. and K. Obanna (2004): Estimation of quench severity of vegetable oils for industrial heat treatment, Proceedings of the International Conference on Heat Treatment, International Heat Treat 2004, 9-10 Jan.2004, Chennai, India.

Prabhu K. N. and Ravishankar B.N (2004).: Effect of modification melt treatment on thermal analysis parameters and casting/mould interfacial heat transfer during solidification in permanent moulds, IIF Transactions, Proceedings of the 52nd Indian Foundry Congress, 6-8 Feb. 2004, Hyderabad, 137-142.

Sathyapal Hegde, Girish Kumar & **K. Narayan Prabhu**: Effect of chilling and modification melt treatment on thermal analysis parameters of A357 alloy, Proceedings of the Eighth International Conference on Non-ferrous Metals, Bangalore, August 6 -7, 2004.

Hegde S. and **Prabhu K.N.**: Computer Aided Thermal Analysis – A Online Tool for Assessment of Melt Quality of Al-Si Alloys, Proceedings of the All India Seminar on Aluminium Production: Energy, Environment and Hazards, Kolkata, 1-2 September 2005, 48.

Prabhu KN, Fernandes P, Alegavi S and Girish K: Effect of metal surface texture and wetting characteristics of quench medium on metal/quenchant interfacial heat transfer, Proceedings of ICAMMP 2006 conference, IIT Kharagpur, 618-624.

Subramania P.K., Hegde S and **Prabhu K.N.**: Measurement of thermal analysis and heat transfer parameters of gravity diecast SiCp reinforced hypereurectic Al-Si alloy matrix composites, Proceedings of ICAMMP 2006 conference, IIT Kharagpur, pp 770-776.

Shankargoud N, Ravi M and **Prabhu K.N.**: Effect of cooling rate during cooling from semisolid state on the microstructure of Sr modified Al-7Si-0.3Mg alloy containing 1% Fe impurity, Proceedings of ICAMMP 2006 conference, IIT Kharagpur, pp777-784.

Subramanya P. K., Sathyapal Hegde and **K.N.Prabhu**: Effect of Volume Fraction and Particle Size of Reinforcement on Thermal Analysis and Heat Transfer Parameters of Gravity Die Cast Hypereutectic Al-22% Si Alloy Matrix Composites, Proceedings of the World Foundry Congress, Harrogate, 5-7 June 2006, United Kingdom.

Shankargoud Nyamannavar, M. Ravi, **K. N. Prabhu**, Microstructure Evolution in Al-7Si- 0.3Mg Alloy During Partial Melting and Solidification from Melt: A Comparison, Proceedings of the World Foundry Congress, Harrogate, 5-7 June 2006, United Kingdom.

Prabhu K.N., Heat Transfer in Sand Casting, Proceedings of the National Workshop on Science & Engineering of Aluminium Casting Practice, National Institute of Technology Karnataka, Surathkal, 22-24 September 2006, pp 74-89.

Girish Kumar and **Prabhu K.N.**: Wetting behaviour and evolution of microstructure in Sn-37Pb and Sn-3.5Ag solders, Proceedings of the International Conference on Advanced Materials & Composites, Oct.24-26, 2007, Trivandrum, pp. 535-540.

Girish Kumar and **Prabhu, K.N.**: Lead free solders: Alternative to conventional solders, Proceedings of All India Seminar on Challenges in Socio-economic and infrastructural developments – Emerging Technology, NMAM Institute of Technology, Nitte, 13-14 November 2007.

C. Sujaya, H.D. Sashikala, G. Umesh, **Prabhu K.N** and S. Hegde, 'Microhardness of laser ablated alumina coating on Ti- 6Al-4V',Proceedings of the International Conference on Metals and Alloys: Past, Present and Future, METALLO2007, 7-10 December, 2007

Shankargoud N, M. Ravi and **K.N.Prabhu**, Constitutional undercooling and growth of globuletic particle, Proceedings of the 68th World Foundry Congress, Chennai, 7-10 February 2008, pp 559-562.

Prabhu K.N., Quench Media, Wetting Kinetics and Metal/Quenchant Interfacial Heat Transfer – A Review, Proceedings of International Conference on MicroElectromechanica Systems (MEMS), 22-23, October 2008, Anjuman Engineering College, Bhatkal, pp. 12- 29.

Shankargoud N, and **K.N.Prabhu**, Solidification and Heat Flux Transients in Dip Soldering, Proceedings of AMPT 2008 Conference, Bahrain, 2-5, November 2008

Sathyanarayana and **K.N.Prabhu**, Wetting behaviour and evolution of microstructure of Sn-1.75Ag-4.5Zn solders, Proceedings of RETMAC conference, NITK, Surathkal,14-15, February 2010

Ramesh G and **K.N.Prabhu**,Measurement of Heat Transfer Coefficients during Downward Solidification of Commercially Pure Zn and ZA8 Alloy International Conference on Thermal Process Modeling and Computer Simulation, 31 May– 2 June 2010 Shanghai, CHINA.

Sathyanarayana and **K.N.Prabhu**, Wetting behavior of Sn-Ag-Zn solders on Zinc coated copper substrates. Proceedings of 8th International Sumposium on Surface Protective Coatings and Paint Expo 2011, The Society for Surface Protective Coatings, New Delhi, 3- 5, March 2011.

G. Ramesh and **K.N. Prabhu**, Characterization of Water base Nanoquenchants by Standard Cooling Curve Analysis, Proceedings of the 19th IFHTSE Congress, Glasgow, UK, 17-20, October 2011

G. Ramesh and **K.N. Prabhu**, Development of Clay Based Nanofluids for Quenching, in Proceedings of the 6th International Quenching and Control of Distortion Conference Including the 4th International

Distortion Engineering Conference (September 9-13, 2012, Chicago, Illinois), Ed. D D.S. MacKenzie, pp 308-318

G. Ramesh and **K.N. Prabhu**, Effect of Quench Probe Material and Section Size on Cooling Severity, in Proceedings of the 6th International Quenching and Control of Distortion Conference Including the 4th International Distortion Engineering Conference (September 9-13, 2012, Chicago, Illinois), Ed. D D.S. MacKenzie, pp 383-393

G. Ramesh and **K.N. Prabhu**, Effect of thermal conductivity and viscosity of liquid quench medium on its cooling performance during immersion quenching, Proceedings of the 20th Congress of IFHTSE, 23-25 October, Beijing, China, 2012, pp 453-456

G. Ramesh and **K.N. Prabhu**, Wetting behaviour of water based Al nanofluids during immersion quenching, Proceedings of the 20th Congress of IFHTSE, 23-25 October, Beijing, China, 2012, pp 401-404.

G. Ramesh, and **K.N.Prabhu**, 'Estimation of spatially dependent heat flux transients during immersion quenching of Inconel 600 probe', ASM- Heat Treat and Surface Engineering Conference and Expo 2013 (HT&SE 2013), Chennai, India, May 16-18, 2013. Sathyanarayan and **K.N. Prabhu**, Wetting behaviour of lead free solders on Cu substrates, CRT 2013 Conference, SDM Institute of Technology, Ujire, access through http://ieeexplore.ieee.org/

Vijeesh V and **K.N. Prabhu**, The effect of Sr modification on casting/chill interfacial heat flux and casting surface profiles during solidification of Al-7Si alloy, CRT 2013 Conference, SDM Institute of Technology, Ujire, access through http://ieeexplore.ieee.org/

Abu Bakar S and **K.N.Prabhu**, Replacement of heat sink fans by nanocoolants for enhancement of CPU efficiency, CRT 2013 Conference, SDM Institute of Technology, Ujire, access through http://ieeexplore.ieee.org

U. Vignesh Nayak and **K.N.Prabhu**, Comparative study of the effect of section thickness of steel during quenching in neem and mineral oils, Proceedings of 29th International Conference of Heat Treating Society (HTS), Columbus, OHIO, 24-26, October 2017.

Sridhin S Roy, Augustine Samuel and **K. Narayan Prabhu**, Heat Transfer Characteristics and Cooling Performance of Treated Kitchen Coconut Oil, Heat Treating Conference Proceedings, Paper No: ht2021p0302, pp. 302-308; https://doi.org/10.31399/asm.cp.ht2021p0302

Augustine Samuel, Pranesh Rao KM, Vignesh Nayak Ullal and **K.Narayan Prabhu** Estimation of Heat Flux Transient During Quench Hardening of Varying Diameter Steel Probes Using IHCP-Phase Transformation Coupled Model, Heat Treat 2023: Proceedings of the 32nd ASM Heat Treating Society Conference, October 17–19, 2023, Detroit, Michigan, USA, https://doi.org/10.31399/asm.cp.ht2023p0088

Jayson Anil Pinto, **K. Narayan Prabhu**, Thermal spray coatings in industrial boiler environments: A review, Materials Research Proceedings, Vol. 55, pp 141-147, 2025 DOI: https://doi.org/10.21741/9781644903612-21

SATYANARAYAN, **K. Narayan Prabhu**, Lead-free solders for high-temperature applications, Materials Research Proceedings, Vol. 55, pp 136-140, 2025 DOI: https://doi.org/10.21741/9781644903612-20

Presentations at Academic Conferences

K.Narayan Prabhu, T.S.Prasanna Kumar and T.Ramchandran: 'Modeling Interfacial Heat Transfer during Solidification Simulation of Castings in Metallic Moulds - A Review, 40th Annual Technical Meeting, The Indian Institute of Metals, Bombay, India (14th-18th November, 1986).

MSK Rao, **K.Narayan Prabhu** and B.Gupta: 'Controlling the Macrostructure of Cast Metals : Separation Theory' 47th Annual Technical Meeting of the Indian Institute of Metals, Hyderabad, India (17-19 November, 1993).

K. Narayan Prabhu, K. Rajendra Udupa and Shivaprasad Karanth: 'New Thermal Analysis Parameters

for Assessment of Degree of Modification of Al-Si Alloys', Materials Congress 2000, Cirencester, United Kingdom (12-14 April, 2000)

K. Narayan Prabhu and W.D. Griffiths: 'Metal/Mould Interfacial Heat Transfer During Solidification of Cast Irons', Materials Congress 2000, Cirencester, United Kingdom (12-14 April, 2000)

K. Narayan Prabhu: 'Role of Thermal Contact Conductance during Materials Processing', National Seminar on Science & Engineering of Materials, Indian Institute of Metals, Thiruvananthapuram, India (21-22, February 2003)

K. Narayan Prabhu: 'Thermal Contact heat transfer in Materials Processing' at the National Seminar on 'Perspectives in Minerals, Metals and Materials Research' held at Indian Institute of Science, Bangalore during 22 -23 July 2004.

K.Narayan Prabhu and Peter Fernandes:Effect of surface texture on metal/quenchant interfacial heat transfer, NMD-ATM 2004, Trivandrum, 17-19 November 2004.

Sathyapal Hegde, Girish Kumar and **K.Narayan Prabhu**: Effect of section thickness and modification melt treatment on thermal analysis parameters of A357 alloy, NMD- ATM 2004, Trivandrum, 17-19 November 2004.

Girish Kumar, Sathyapal Hegde and **K.Narayan Prabhu**: Heat Transfer and Solidification Behaviour of modified A357 alloy during solidification of melt treated A357 alloy, NMD-ATM 2004, Trivandrum 17-19 November 2004.

Shankargoud Nyamannavar, M. Ravi and **K. Narayan Prabhu**: Microstructure evolution in Isothermally held semi-solid Al-Si-0.3 Mg Alloy, NMD-ATM 2004, Trivandrum 17-19 November 2004.

K. Narayan Prabhu, Siddaram Alegavi, Girish Kumar and Peter Fernandes: Heat Transfer and Wetting Characteristics of Environment Friendly Vegetable Oils for Quenching, NMD-ATM 2005, Chennai 14-16 November 2005.

S.Nyamannavar, B.Udapudi and **K.N.Prabhu**: Indentation Creep Studies on Pb- free Sn-9Zn Solder Alloy, NMD-ATM 2005, Chennai 14-16 November 2005.

Sathyapal Hegde and **K. Narayan Prabhu**: Effect of Sr and cooling rate on thermal analysis parameters of A357 and A413 Alloy, NMD-ATM 2005, Chennai 14-16 November 2005.

K. Narayan Prabhu and Rajkumar: Hydrophobic and Hydrophilic Surfaces in Nature, NMD-ATM 2010, Bangalore 14-16 November 2010

Satyanarayan and **K. N. Prabhu**: Wetting behaviour of Sn-Ag-Zn solders on silver coated copper substrates, NMD-ATM 2010, Bangalore 14-16 November 2010

G. Ramesh and **K. N. Prabhu**: Assessment of Thermal Behaviour of Chills During Downward Solidification Of ZA8 Alloy, NMD-ATM 2010, Bangalore 14-16 November 2010

G. Ramesh, and **K.N.Prabhu**, 'Effect of addition of copper nanoparticles on wetting behaviour of water during immersion quenching', International Symposium for Research Scholars on Metallurgy, Materials Science and Engineering, Chennai, India, December 13- 15, 2012.

Mahesan V.P., **K. N. Prabhu** and T.P.D. Rajan, Effect of Centrifugal Force on Morphology and Distribution of Eutectic/Primary Silicon in Unmodified and Sr Modified Hypereutectic Al- Si Alloy A390, International Symposium for Research Scholars on Metallurgy, Materials Science and Engineering, Chennai, India, December 13-15, 2012.

Vijeesh V and **K.N.Prabhu**, Effect of cooling rate on microstrostructure and thermal anaylsis parameters of hypereutectic Al-14% Si alloy, International Conference on Advanced Functional Materials, Trivandrum, India, 19-21, February 2014.

Sudheer R and **K.N.Prabhu**, Metal-Chill Interfacial heat transfer: Effect of chill material and surface roughness, NMD-ATM 2014, Pune, 12-15 November 2014

Pranesh Rao K.M. and **K.N.Prabhu**, Cooling performance of select vegetable Oils and nineral-vegetable oil blend quench media, NMD ATM 2014, Pune, 12-15 November 2014

Vijeesh V and **K.N.Prabhu**: Effect of varying content of Sr addition on dendrite coherency of near eutectic Al-11% Si alloy, NMD ATM 2014, Pune, 12-15 November 2014

Pranav Nayak, Rakesh Kamath, Mrunali Sona, **K.N.Prabhu**: Wettability and Bond Strength of Sn-3.5 Lead-free solder alloy re-flowed on copper substrate, NMD ATM 2014, Pune, 12-15 November 2014

Vignesh Nayak U and **K.N.Prabhu**: Assessment of heat transfer in MWCNT-water nanofluids for quench heat treatment, NMD ATM 2014, Pune, 12-15 November 2014

Mrunali Sona and **K.N.Prabhu**: Assessment of solder joint reliability of Sn-3.8- 0.7Cu alloys on copper substrates as a function of reflow time, NMD ATM 2014, Pune, 12- 15 November 2014

K. Narayan Prabhu, Wetting kinetics, kinematics and heat transfer characteristics of quench media: State of the Art, Invited Talk, NMD ATM 2014, Pune, 12-15 November 2014

Sudheer R and **K.N.Prabhu**, Micro And Nano Graphite Particle Embedded Salt- PCMs For Thermal Energy Storage Applications, International Conference on Diamond and Carbon Materials, 4-8 September 2016, Le Corum, Montpellier, France.

V.R. Jambur, Achyut Menon, **K.N.Prabhu** and Sumanth Shankar, The effect of Strontium Addition on Cooling Behaviour of directionally solidified Al-11.5% SiAlloy, 55th National Metallurgists Day & 71st ATM, Goa, 11-15, November 2017.

Sudheer R and **K.N.Prabhu**, Salt based phase change materials for thermal energy storage applications, International conference on Advance Materials and Processes, Thiruvananthapuram, 14-16, December 2017.

Sudheer R and **K.N.Prabhu**, Heat Transfer Characteristics of Nanoparticle Dispersed Nitrate salt-PCM For Thermal Energy Storage Applications, International conference on sustainable energy & environmental challenges (SEEC2018), Bangalore, 01-03, January 2018

V.R. Jambur, Achyut Menon, **K.N.Prabhu** and Sumanth Shankar, Effect of Strontium Addition on Microstructure and Properties of Hypoeutectic Al-7%Si Alloy, 7th International Engineering Symposium, Kumamoto University, Japan, 7-9, March 2018

K.N.Prabhu, 'Non-Conventional Quench Media for Industrial Heat Treatment', ASM Met –HTS 2018 International Conference, CIDCO International Convention Centre, Navi Mumbai, 27-29, September 2018

K.N.Prabhu, Materials for Thermal Energy Storage, International Conference on Recent Advances in Engineering Materials during 03 – 05, March 2022, ICRAEM - 2022, AIET, Moodbidri

A. Samuel, Pranesh Rao M, Vignesh Nayak U and **K.N.Prabhu**, A novel technique for assessment of heat transfer during quench hardening of steels, ASM International India Chapter International Conference on Materials, Engineering technology and Advances in Heat Treatment, 02-04, November 2022, BEC, Mumbai

Augustine Samuel, U. Vignesh Nayak, K.M. Pranesh Rao, **K Narayan Prabhu**; October 17–19, 2023. "Estimation of Heat Flux Transient During Quench Hardening of Varying Diameter Steel Probes Using IHCP-Phase Transformation Coupled Model." Proceedings of the HT 2023. Heat Treat 2023: Proceedings from the 32nd Heat Treating Society Conference and Exposition. Detroit, Michigan, USA. (pp. pp. 88-97). ASM. https://doi.org/10.31399/asm.cp.ht2023p0088

Nathan D.K. and **K.N.Prabhu**, Heat Flux Transients during Polymer Injection Molding, Polymer Processing Society Asia-Australasia Regional Conference, PPS – 2023, Trivandrum, 29, November -1, De-

cember 2023