K Narayan Prabhu, PhD

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

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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 PU College 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 Center, 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**.

MIDHANI TIIM Best Technical Paper Award (as published IN TRANS-IIM in 2024) in the Materials Science Category for the paper titled, 'Heat Transfer During Solidification of Polyethylene Terephthalate (PET) in Injection Molding"

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.

Pai, K. Raghavendra, Vijeesh Vijayan, Augustine Samuel, and **K. Narayan Prabhu** (Dec. 2025). "Wettability and Heat Transfer During Impingement of Al-Mg alloy (AA 5356) Droplets on AA 5356 Substrates". In: *Transactions of the Indian Institute of Metals* 79.1, p. 17. ISSN: 0975-1645. DOI: 10.1007/s12666-025-03757-x. URL: https://doi.org/10.1007/s12666-025-03757-x.

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.

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.

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