



**K. Narayan Prabhu, Ph.D.**

**Professor (HAG)**

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## **ACADEMIC QUALIFICATIONS**

**B.Sc.:** Physics, Chemistry and Mathematics: Canara College, Mangalore University, 1983, I Class

**M.Sc.:** Industrial Chemistry: University of Mysore, 1985, I Class with I Rank

**M.Tech.** Process Metallurgy: Karnataka Regional Engineering College (Now NITK), Mangalore University, 1987, I Class with Distinction

**Ph.D.:** Metallurgical Engineering: Karnataka Regional Engineering College (now NITK), Mangalore University, 1991

## **EARLY EDUCATION**

Government Higher Primary School, Mangalore, 1968 – 1975

Canara High School and Canara Pre-University College, Mangalore: 1975-1980

## **SCIENTIFIC EDUCATION AND TRAINING**

- Research Associate : August 1987 – June 1990 : Department of Metallurgical and Materials Engineering, Karnataka Regional Engineering College, Surathkal, (Now, NITK), India : Research for Ph. D.
- Honorary Research Fellow: March 1996 – March 1997, IRC in Materials for High Performance Applications, University of Birmingham, United Kingdom
- DST-SERB Visiting fellow at the Regional Research Laboratory (Now, CSIR NIIST), Thiruvananthapuram, December 1997 –Jan 2008.
- Postdoctoral Research Associate: June 1998 – June 2000 : Manchester Materials Science Centre, University of Manchester and UMIST, United Kingdom
- Indian National Science Academy Visiting Fellow at the Regional Research Laboratory (Now, CSIR NIIST), Thiruvananthapuram, May 2002-June 2002.
- DST-The Royal Society Visiting Fellow at the Interdisciplinary Research Centre (IRC) in Materials Processing, University of Birmingham, UK under the India-UK Network scheme, May 2005 – August 2005
- Visiting Research Scientist at the School of Metallurgy & Materials, University of Birmingham, UK May-July 2008.

- Visiting Research Scientist at the School of Metallurgy & Materials, University of Birmingham, UK, June-July 2014.

## **PREVIOUS APPOINTMENT**

Professor: November 2007-September 2018: NITK

Assistant Professor: October 1999 – October 2007, NITK

Senior Lecturer: September 1996 – September 1999, KREC (now NITK)

Lecturer in the Department of Metallurgical & Materials Engineering, Karnataka Regional Engineering College, Surathkal (Now NITK) : Sept. 1992 - August 1996, KREC (Now NITK)

Regional Engineering College, Surathkal (Now NITK) : July. 1990 – July 1992, KREC (Now NITK): Lecturer (Temporary)

## **PRESENT APPOINTMENT**

Professor- Higher Administrative Grade (HAG): October 2018 onwards in the Department of Metallurgical & Materials Engineering, National Institute of Technology Karnataka (NITK), Surathkal, India. Responsibilities in this post include teaching both undergraduate and postgraduate students in metallurgical/materials engineering and research.

### **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)
- Mangalore Productivity Council (Life Member)
- Association of British Scholars (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./Ph.D. Guidance**

M.Tech: 98 (completed) + 5 (ongoing); M.Tech (Research): 2 (completed);

Ph.D: 13 (completed) + 5 (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 award.*

*\*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**

1. 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: Rs 2.2 lakhs) – successfully completed
2. 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: Rs 8 lakhs) – successfully completed
3. UGC Career Award Project (Grant No. F.6-3/93 (SA-III) dated 1-08-1994 and Sanctioned Amount: Rs 2 lakhs) – successfully completed
4. 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: Rs 17500/=) – successfully completed
5. MHRD Research Project (Grant No. F.26-4/2002-TSV dt. 31.3.2003) on 'Non-destructive microstructure control of Al-Si alloys (Rs 7 lakhs) – successfully completed
6. 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' (Rs. 33.65 lakhs) – successfully completed
7. 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' (Rs.15 lakhs) - successfully completed
8. 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 (Rs.82 lakhs) – successfully completed

9. 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’ - (Rs. 30.47 lakhs) – successfully completed.
10. 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 ‘ (Rs. 13.8 lakhs) – successfully completed, May 2017
11. 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’ (Rs. 18.3 lakhs) – ongoing

### **AWARDS AND RECOGNITIONS**

- *National Merit Certificate* by the Ministry of Education, Government of India for meritorious performance in Secondary School Leaving Certificate Examination: 1978
- *Prof. Sanke Gowda Cash Prize* by the University of Mysore for securing top position in M.Sc. in the University 1985
- *National Metallurgists Day Young Metallurgists’ Award* by the Ministry of Steel, Government of India, 1993
- *Career Award in Engineering & Technology* for Young Teachers by the University Grants Commission, Government of India, 1994
- *DST Young Scientist Project Award*, 1994.
- *BOYSCAST Visiting Research Fellowship* at the University of Birmingham, United Kingdom by the Department of Science and Technology, Government of India, 1996
- *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
- *Postdoctoral Research Associateship* at the Manchester Materials Science Centre, University of Manchester and UMIST, United Kingdom, 1998
- *Best Paper Award* for the paper titled ‘Casting/mould interfacial heat transfer during solidification of aluminium matrix composites’ at the 6<sup>th</sup> Asian and 47<sup>th</sup> Indian Foundry Congress, Calcutta , Jan. 1999
- *Binani Trust Silver Medal* for the best paper (nonferrous) published in the Indian Foundry Journal during 1998-2000, February 2001
- *Sir C.V. Raman Young Scientist Award* in Engineering Science 2001 by the Government of Karnataka, India, February 2003.
- *Honorary Research Fellowship at the IRC in Materials Processing*, University of Birmingham, UK, 2005-2011
- 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 the 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 (<http://www.springer.com/materials/special+types/journal/12666> Date of access: 14th January 2014)
- 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, Januray 2018
- Member, Global Data Base Project on Liquid Quenchants, International Federation of Heat Treatment and Surface Engineering, UK
- Editorial Board Member: Materials Performance and Characterization, ASTM International, USA
- Editorial Board Member: International Journal of Cast Metals Research, Maney Publishers, UK
- 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
- Reviewer for NPTEL Video Course on ‘Steelmaking’, 2010
- Reviewer for ASM Volume 4A Handbook, Steel Heat Treating Fundamentals and

Processes, 2013

- Local Coordinator of GIAN, NITK, an initiative by MHRD, Govt. of India, July 2015 – September 2019
- Head of the Department of MME, 20, April 2011 – 20, April 2014
- Head of the Department of MME, 12, January 2020 – 12, January 2022

## **Complete Publication List**

### **A) Books**

Lead-free Solders, Ed. K.N.Prabhu, 2011, Pages: 217, ASTM International, PA, ISBN: 978-0-8031-7516-7 <http://www.astm.org/BOOKSTORE/PUBS/STP1530.htm>

Film and Nucleate Boiling Processes, Ed. K.N.Prabhu and N.I. Kobasko, 2012, Pages: 434, ASTM International, PA, ISBN: 978-0-8031-7520-4 <http://www.astm.org/BOOKSTORE/PUBS/STP1534.htm>

Nanofluids, Ed. K.N.Prabhu, 2012, Pages 196, ASTM International, PA, <http://www.astm.org/BOOKSTORE/PUBS/STP1567.htm>

### **B) Book Chapters**

Prabhu K.N., Severity of Quenching & Wetting Kinetics of Vegetable Oils for Heat Treatment' in Quenching Theory and Technology, 2nd Edition, (Eds. Bozidar Liscic, Hans M Tensi, George E Totten, Lauralice C.F. Canale), CRC Press, 2010, 205-228. <https://www.crcpress.com/Quenching-Theory-and-Technology-Second-Edition/Liscic-Tensi-Canale-Totten/p/book/9780849392795>

Prabhu K.N., Nanofluids as Quenchants in Industrial Heat Treatment, in ASM Handbook, Volume 4B: Steel Heat Treating Technologies, ASM International, OH, 324-336, 2014

Prabhu K.N., Nanofluids as Alternate Coolants in Steel Industry, Encyclopedia of Iron, Steel, and Their Alloys (Eds. Rafael Colás, George E. Totten), 2016, DOI: 10.1081/E-EISA-120048778

Prabhu K.N., Quenchants: Polymer, Encyclopedia of Iron, Steel, and Their Alloys (Eds. Rafael Colás, George E. Totten), CRC Press, 2016, 2744 – 2760.

Prabhu, K.N., Vignesh Nayak, Pranesh Rao, Polymer quenchants for industrial heat treatment, Advances in Polymer Materials and Technology, (Eds. A Srinivasan and Sri Bandyopadhyay), CRC Press, 2016, 703-734

### **C) Journals**

1. Prabhu, K.N., Kumar, T.S.P. and Ramchandran, T. (1988): Modelling Interfacial Heat Transfer in Die Casting. In: Principles of Solidification and Materials Processing Eds. R. Trivedi, J.A. Sekhar and J.Mazumdar (Oxford and IBH), 761-768.

2. Kumar, T.S.P. and Prabhu, K.N. (1991):Heat Flux Transients at the Casting/Chill Interface during Solidification of Aluminium Base Alloys, Metallurgical Transactions B, 22 B, 717-727.

3. Prabhu, K.N., Madheswaran, D., Kumar, T.S.P. and Venkataraman, N. (1992):

Computer Modelling of Heat Flow and Microstructure Fineness in Chill Cast Aluminium Alloy LM 24, AFS Transactions 101, 1992, 611 - 617.

4. Prabhu, K.N., Srinivas G and Venkataraman, N. (1993): Modelling Heat Transfer and Solidification Behaviour of Gravity Die Cast Al-Cu-Si Alloy (LM 21) Plates, AFS Transactions 102 653-659.
5. Prabhu, K.N., Arun Kumar, S.A. and Venkataraman, N (1994): Effect of Coating/Mould Wall/Casting Thickness on Heat Transfer and Solidification in Cast Iron Moulds, AFS Transactions 103 827-832.
6. Prabhu, K.N. (1997): Effect of Mould Wall Distortion on Metal/Mould Interfacial Transfer KREC Research Bulletin, June 1997, 7-12.
7. Prabhu, K.N., Dodamani, R., Kumar, H., Kiran, P. and Venkataraman, N. (1997) : Interfacial Heat Flux Transients in Casting and Quenching, Indian Foundry Journal, 43 7-23
8. Prabhu, K.N. and Prabhu, N.N. (1997): Modelling Thermal behaviour of Chills during Solidification of a Al-Cu-Si Alloy, AFS Transactions 105 707 –713.
9. Prabhu, K.N., Karanth, S. and Udupa, K.R. (1999): 'Assessment of Degree of Modification in Al-Si Alloys by NDT Techniques, Indian Foundry Journal, 45 177- 184.
10. Prabhu, K.N. and Campbell, J. (1999): Investigation of Casting/Chill Interfacial Heat Transfer during Solidification of Al-11% Si Alloy by Inverse Modelling and Real-Time X-Ray Imaging, International Journal of Cast Metals Research 12 137 - 143.
11. Prabhu, K.N. and Griffiths, W.D. (2000): Assessment of Metal/Mould Interfacial Heat Transfer during Solidification of Cast Iron, Materials Science Forum, 1329-330 455-460.
12. Griffiths, W.D., Prabhu, K.N., Hallam, C.P. and Kayikci, R (2000): The determination of the heat transfer coefficient in experiments involving unidirectional solidification. In: Modelling of Casting, Welding and Advanced Solidification Processes IX, Eds. Sahn, P.R, Hansen, P. N. and Conley, J.G. (Shaker Verlag GmbH) 143-150.
13. Prabhu, K.N. and Griffiths, W.D. (2001): Metal-Mould Interfacial Heat Transfer during solidification of cast iron in sand moulds, International Journal of Cast Metals Research, 14 147-155.
14. Prabhu, K.N., Kumar, S.T. and Venkataraman, N (2002): Heat Transfer at the metal/substrate interface during solidification of Pb-Sn solder alloys, Journal of Materials Engineering and Performance, 11 265-273.
15. Prabhu, K.N. and Griffiths, W.D. (2002): A one-dimensional predictive model for the estimation of interfacial heat transfer coefficient during solidification of cast iron in a sand mould, Materials Science & Technology, 18 804-810.
16. Prabhu, K.N. and Ashish, A.A. (2002): Inverse Modelling of Heat Transfer with application to Solidification and Quenching, Journal of Materials and Manufacturing Processes, 17 469 –481.

17. Prabhu, K.N., Kumar, S.T., and Venkataraman, N. (2002): Effect of thermal contact conductance on the solidification of a Pb-Sn solder alloy, Transactions of the Indian Institute of Metals, 55, 565-568.
18. Gafur, A, Haque, N and Prabhu, K.N. (2003): Effect of chill thickness and superheat on the casting/chill interfacial heat transfer during solidification of commercially pure aluminium, Journal of Materials Processing Technology, 133 257- 265.
19. Prabhu, K.N. and Prasad, A.(2003): Metal/Quenchant Interfacial Heat Transfer during Quenching in Conventional Quench Media and Vegetable Oils, J. Mater. Eng. Performance, 12 48-55.
20. Griffiths, W.D., Prabhu, K.N., Hallam, C.P. and Kayacki, R (2003): The deformation of the chill in experiments to determine the interfacial heat transfer coefficient during casting solidification, International Journal of Cast Metals Research, 15 545-550.
21. Prabhu, K.N., Mounesh, H., Suresha, K.M. and Ashish, A.A (2003): Casting/Mould Interfacial Heat transfer during solidification in graphite, steel and graphite-lined steel moulds, International Journal of Cast Metals Research, 15 565- 572.
22. Prabhu, K.N. and Ravishankar, B.N. (2003): Effect of modification melt treatment on casting/chill interfacial heat transfer and electrical conductivity of Al-13% Si Alloy, Materials Science Engineering A, 360 293-298.
23. Prabhu, K.N., Rajat, R and Bali, R, (2004): Effect of substrate texture on the evolution of microstructure during solidification of a lead free Sn-3.5Ag solder alloy, Materials & Design, 25 (5) 447-449.
24. Prabhu, K.N. and Suresha, K.M. (2004): Effect of superheat, casting and mould materials on the casting/mould interfacial heat transfer during solidification in graphite lined moulds, J. Materials Engg. Performance, 13(5) 619-626.
25. Prabhu, K.N (2004): Role of Thermal Contact Conductance during solidification and quenching – A Review, Metal News, 8 13-16.
26. Nyamannavar S. and Prabhu, K.N.(2005): Effect of Isothermal Holding at Semi-Solid Temperature and presence of 1% Fe on Microstructure of Al-7Si-0.3Mg Alloy, NITK Research Bulletin, 14 1-6.
27. Kumar G., Hegde S and Prabhu K.N. (2005): Mechanism and Non-destructive Assessment of Modification of Al-Si Alloys – A Review, Indian Foundry Journal, 51 25-40.
28. Prabhu K.N., Chowdary B and Venktaraman N (2005):Casting-Mould Thermal Contact Heat Transfer during Solidification of Al-Cu-Si Alloy (LM21) in Thick and Thin Molds, J. Materials Engg. Performance, 14(5) 604-609.
29. Nilesh K, Hegde S, Girish K and Prabhu K.N. (2006): Effect of modification melt treatment and cooling rate on NDT parameters of Al-13% Si alloy (LM 9), Indian Foundry Journal, 52(1) 24-32



30. Prabhu K.N. and Hemanna P (2006): Effect of chemical modification on heat transfer during quenching of gravity die cast A357 cylindrical bars, *J.Mater.Engg. Performance* 16(3) 311-315.
31. Girish Kumar and Prabhu K.N. (2006): Investigation of wettability of metallic substrates by Sn-Pb and Sn-Ag solders, *NITK Research Bulletin*, 15(1) 19-22.
32. Hegde S, Girish K and Prabhu K.N. (2006): Effect of section thickness on thermal analysis parameters of A357 alloy, *Int. J. Of Cast Met. Res.* 19(4), 254-258.
33. Prabhu K.N. and Fernandes P (2007): Effect of surface roughness on metal-liquid interfacial heat transfer and evolution of microstructure, *Materials & Design* 28(1) 70-78.
34. Chellaih T, Girish K and Prabhu K.N. (2007): Effect of thermal contact conductance on heat transfer during solidification of Pb-Sn and Pb-free solders, *Materials & Design* 28(3) 1006-1011.
35. Rajan T.P.D., Prabhu K.N., Pillai R.M. and Pai B.C. (2007): Solidification and casting/mould interfacial characteristics of aluminium matrix composites, *Composite Science & Technology* 67(1) 70-78.
36. Girish K, Hegde S and Prabhu K.N.(2007): Heat Transfer and Solidification Behaviour of A357 Modified Alloy, *Journal of Materials Processing Technology*, 182(1-3) 152-156.
37. Peter Fernandes and Prabhu K.N. (2007): Effect of Section Size and Agitation on Heat Transfer during Quenching of AISI 1040 Steel, *Journal of Materials Processing Technology*, 28(2) 544-550.
38. S. Hegde and Prabhu K.N. (2007): Mechanisms of Modification of Eutectic Silicon in Al-Si alloys, *NITK Research Bulletin*, July, 1-6
39. K. Biju, Prabhu K.N. and K.R.Udupa (2007): Heat flow simulation and evolution of microstructure during welding of a rail steel, *Indian Welding Journal*, July 2007, 21-27
40. Girish Kumar and Prabhu K.N. (2007): Review of non-reactive and reactive wetting of liquids on surfaces, *Advances in Colloid and Interface Science*, 133 61-89.
41. Prabhu K.N. and Peter Fernandes (2007): Determination of wetting behaviour, spread activation energy and quench severity of vegetable oils, *Metall & Mater. Trans. B*, Volume 38, Number 4, pp 631-640.
42. K. Narayan Prabhu and Peter Fernandes (2008): Nanoquenchants for Industrial Heat Treatment, *Journal of Materials Engineering Performance*, 17(1) 101-103
43. S. Alegavi and K.N.Prabhu (2008): Ecofriendly quenchants for heat treatment of castings, *Indian Foundry Journal*, 33 (1), 33-40.
44. Peter Fernandes and Prabhu K.N.(2008): Comparative study of heat transfer and wetting characteristics of conventional and bioquenchants, *International Journal of Heat & Mass Transfer*, 51, 526-538

45. S.Hegde and Prabhu K.N (2008).: Mechanisms of modification of eutectic silicon, *Journal of Materials Science*, 43(9), 3009-3027
46. C. Sujaya, H.D. Shashikala, G. Umesh, K. N.Prabhu and S.Hegde (2008), Microhardness of Laser Ablated Alumina Coating on Ti-6Al-4V, *Trans. Indian Inst. Met.*, 61 (2-3), 99-101
47. Shankargoud N and Prabhu K.N. (2008): Heat flux transients at the solder/substrate interface in dip soldering, *Trans. Indian Inst. Met.*, 61(4), 279-282
48. Prabhu K.N., Peter Fernandes and G. Kumar (2009): Effect of substrate surface roughness on wetting behaviour of vegetable oils, *Materials & Design*, 30(2), 297-305
49. Prabhu K.N. and Peter Fernandes: Heat Transfer During Quenching and Assessment of Quench Severity, *Journal of ASTM International*, 6(1), January 2009 Paper ID: JAI101784
50. J. Vaishali and K.N. Prabhu (2009): Severity of Quenching and Kinetics of Wetting of Nanofluids and Vegetable Oils, *Journal of ASTM International*, 6(3), March 2009 Paper ID: JAI101800
51. Shankargoud N, S. Hegde and Prabhu K.N. (2009): Estimation of heat flux transients at the metal/mould interface during solidification, *Indian Foundry Journal*, 55(2), 37-42
52. H.U.Prasanna, K.R.Udupa and K.N.Prabhu (2009), Investigation into Creep Behaviour of Sn-40% Pb Alloy using Impression Creep Method, *IE(I) Journal –MM*, 90, 12-15
53. Prabhu K.N., Shivakrishna and Peter Fernandes (2009), Assessment of Quench Severity of Vegetable Oil Blends for Heat Treatment of Steels, *Curie*, 2(1), 28-37
54. Shankargoud N and Prabhu K.N (2009): Thermal contact at solder/substrate interfaces during solidification, *Materials Science & Technology*, 25(6), 707-710
55. A.O. Surendranathan, K.N. Prabhu and H.V.S.Nayak, Assessment of Corrosion Behaviour of Ductile Iron by Factorial Experiments, *Journal of Materials Engineering & Performance* Volume 18(9) December 2009, 1241-47.
56. Shankargoud Nyamannavar and K. Narayan Prabhu. Experimental Models for Assessment of Interfacial Heat Transfer in Dip Soldering, *Advanced Materials Research* Vols. 83-86 (2010) 1228-1235
57. Kumar G and K.N.Prabhu, Wetting behaviour of Solders, *Journal of ASTM International* , vol. 7 (5) 2010 Paper ID: JAI103055
58. Satyanarayan and K.N.Prabhu, "Wetting behaviour and evolution of microstructure of Sn-Ag-Zn solder on copper substrates with different surface textures," *Journal of ASTM International*, Vol. 7(9), 2010 Paper ID: JAI103052
59. K.N.Prabhu and G. Kumar: Determination of Spread Activation Energy and Assessment of Wetting Behaviour of Solders on Metallic Substrates, *J. Electron. Packag.*

132, 041001 (2010), DOI:10.1115/1.4002899

60. S. Hegde and K.N.Prabhu, 'Investigation of the effect of chill surface roughness, coating and location on heat transfer during solidification of modified Al-Si alloys', *Indian Foundry Journal*, vol. 56(2), 2010, 23-30.

61. E. Rajesh and K.N.Prabhu, 'Enhancement of heat transfer characteristics of transformer oil by addition of aluminum nanoparticles', *Journal of ASTM International*, vol. 8 (2), February 2011, DOI: 10.1520/JAI103354

62. I. Ali and K.N.Prabhu, Comparison of Grossmann and Lumped Heat Capacitance Methods for Assessment of Heat Transfer Characteristics of Quench Media, *International Journal of Heat Treatment and Surface Engineering*, vol. 5(1), 2011, 41- 46.

63. G. Ramesh and K.N.Prabhu, Review of thermo-physical properties, wetting and heat transfer characteristics of nanofluids and their applicability in industrial quench heat treatment, *Nanoscale Research Letters*, 2011, 6:334, (14, April 2011) doi:10.1186/1556-276X-6-334

64. Mahesh Padaki, Arun M Isloor, Ganesh Belavadi and K.N.Prabhu, Preparation, characterization and performance study of Poly (isobutylene-altmaleicanhydride)

[PIAM] and Polysulfone [PSf] composite membranes before and after alkali treatment, *Ind. Eng. Chem. Res.* 2011, 50, 6528–6534

65. Satyanarayan and K.N.Prabhu, Wetting behaviour and Interfacial microstructure of Sn-Ag-Zn solders on Ni coated Al substrates," *Materials Science and Technology*, 2011 27 (7) 1157-1162

66. K.N.Prabhu and S. Hegde, Effect of modification melt treatment and chilling on eutectic arrest temperature and time during solidification of A357 alloy, *Materials Science and Technology*, 2011 27 (8) 1353-1356.

67. Satyanarayan and K.N.Prabhu, Reactive wetting, evolution of interfacial and bulk IMCs and their effect on mechanical properties of eutectic Sn-Cu solder alloy, *Advances in Colloid and Interface Science* Volume 166, Issues 1-2, 2011, Pages 87- 118.

68. Mahesh Padaki, Arun M. Isloor, Jenifer Fernandes and K Narayan Prabhu, New Polypropylene supported chitosan NF-membrane for desalination applications, *Desalination*, Volume 280, Issues 1-3, October 2011, 419-423.

69. K.N.Prabhu, K. Sharath and G. Ramesh, 'Heat flux Transients and casting surface macro-profile during downward solidification of Al-12% Si alloy against chills', *International Journal of Metal Casting*, 5 (1), 2011, 63-70.

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