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Heat Transfer and fluid flowRenewable energySustainable Materials ProcessingIndustrial Safety

List of Publications

Journals

1. R. Ajith Krishnan , **K.R. Balasubramanian** , S. Suresh, "The effect of heating area orientation on flow boiling performance in microchannels heat sink under subcooled condition" *International Journal of Heat and Mass Transfer* Volume 110, July 2017, Vol 110, Pages 276–293 Vol 110 DOI:10.1016/j.ijheatmasstransfer.2017.03.030 Impact factor 2.87
2. Hari Krishnan S. Pillai, **K. R. Balasubramanian**, P. S. Seshadri, "Effect On Performance Of Utility Boiler With Variation In Fuel Properties", **International Journal of Applied Engineering Research**, 2016, Vol. 11, No. 6 pp 3786-3790
3. Sankar G, Chandrasekhara Rao A, Seshadri P S and **K.R. Balasubramanian**, "Techniques for measurement of heat flux in furnace waterwalls of boilers and prediction of heat flux - A review", **Applied Thermal Engineering**, 2016, 103 1470–1479 DOI:10.1016/j.applthermaleng.2016.03.013 Impact factor-3.043
4. Sankar G, Chandrasekhara Rao A, Kartikeyan V R, Seshadri P S, **Balasubramanian K R**, "A New Method for Prediction of Local Heat Flux on Membrane Waterwall with Rifled Tubes of Subcritical Boilers", **International Journal of Applied Engineering Research**, 2016 , Vol. 11, No. 2 pp. 1273-1281
5. Ganesh, K. C., **K. R. Balasubramanian**, M. Vasudevan, P. Vasantharaja and N. Chandrasekhar. "Effect of multipass TIG and activated TIG welding process on the thermo-mechanical behavior of 316LN stainless steel weld joints", **Metallurgical and Materials Transactions B**, 2016, 47(2), pp. 1347-1362 DOI: 10.1007/s11663-016-0600-6 Impact factor: 1.474
6. Nanda Naik Korra, M. Vasudevan and **K. R. Balasubramanian**, "Optimization of A-TIG welding of Duplex Stainless Steel Alloy 2205 based on Response Surface Methodology and Experimental Validation", **Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications**, DOI: [10.1177/1464420715585878](#) Impact factor: 0.793
7. P. Dinesh Babu, G. Buvanashakaran and **K. R. Balasubramanian**, "The Elevated Temperature Wear Analysis of Laser Surface–Hardened EN25 Steel Using Response Surface Methodology", **Tribology Transactions**, 2015, Vol.58:4, pp. 602-615
8. K.C. Ganesh, M. Vasudevan, **K.R. Balasubramanian**, N. Chandrasekhar S. Mahadevan, P. Vasantharaja, T. Jayakumar, "Modeling, Prediction and Validation of Thermal Cycles, Residual Stresses and Distortion in type 316 LN Stainless Steel Weld Joint made by TIG Welding Process", **Procedia Engineering**, 2014, Volume 86, pp 767–774. DOI:10.1016/j.proeng.2014.11.096
9. Nanda Naik Korra, M. Vasudevan and **K. R. Balasubramanian**, "Multi-objective optimization of activated tungsten inert gas welding of duplex stainless steel using response surface methodology", **International Journal of Advanced Manufacturing**

Technology, 2015, Volume 77, Issue 1-4, pp 67-81 DOI: 10.1007/s00170-014-6426-y
Impact factor: 1.568

10. **K. R. Balasubramanian**, S. P. Sivapirakasam, J. Mathew, "Analysis of chemical degradative effects on low voltage PVC insulation using DSC", **Applied Mechanics and Materials**, 2014 , Vol. 592-594, pp. 2475 -2480
11. **K. R. Balasubramanian**, S. P. Sivapirakasam, N.N. Korra, K. Kumar Dhruw, "Study of posture and discomfort in handling machines in manufacturing industry", **Applied Mechanics and Materials**, 2014 , Vol. 592-594, pp. 2552-2556
DOI: 10.4028/www.scientific.net/AMM.592-594.2552
12. **K. R. Balasubramanian**, T. Suthakar, K. Sankaranarayananasamy, G. Buvanashakaran, "Numerical studies on heat transfer and fluid flow during laser welding of thin sheet", **Applied Mechanics and Materials**, 2014 , Vol. 592-594, pp. 571-578 DOI: 10.4028/www.scientific.net/AMM.592-594.571
13. K.N. Naik, **K. R. Balasubramanian**, M. Vasudevan, "Finite element simulation of A-TIG welding of duplex stainless steel 2205 using SYSWELD", **Applied Mechanics and Materials**, 2014 , Vol. 592-594, pp. 374-379
14. M Jaganmohan Rao, S.P Sivapirakasham, **K.R. Balasubramanian**, K. Sreenath, "Investigation of Whole body vibration on Urban Midi Bus", **Applied Mechanics and Materials**, 2014 , Vol. 592-594, pp. 2066-2070 DOI: 10.4028/www.scientific.net/AMM.592-594.2066.
15. Nanda Naik Korra, **K. R. Balasubramanian** and M. Vasudevan, "Optimization of activated tungsten inert gas welding of super duplex alloy 2507 based on experimental results", **Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture**, 2015, Vol. 229(8), pp. 1407–1417 DOI: [10.1177/0954405414537245](https://doi.org/10.1177/0954405414537245) Impact factor: 0.978
16. K. C. Ganesh , M. Vasudevan , **K. R. Balasubramanian**, N. Chandrasekhar and P. Vasantharaja, "Thermo - Mechanical Analysis of TIG Welding of AISI 316LN Stainless Steel", **Materials and Manufacturing Processes**, 2014, Vol. 29, pp. 903–909 DOI:10.1080/10426914.2013.872266
17. P. Dinesh Babu, G. Buvanashakaran and **K. R. Balasubramanian**, "Numerical analysis and experimental validation of hardness and microstructural changes during laser transformation hardening of low alloy steel plates", **Proceedings of the Institution of Mechanical Engineers, Part L, Journal of Materials: Design and Applications**, 2014 Vol. 228(3) 217–230. DOI: [10.1177/1464420713486583](https://doi.org/10.1177/1464420713486583) Impact factor: 0.793
18. G. R. Kannan, **K. R. Balasubramanian** and R. Anand, "Artificial Neural Network Approach To Study The Effect Of Injection Pressure and Timing On Diesel Engine Performance Fueled With Biodiesel", **International Journal of Automotive Technology**, 2013 Vol. 14, No. 4, pp. 507–519 DOI: 10.1007/s12239-013-0055-6 Impact factor: 0.876
19. P. Dinesh Babu, G. Buvanashakaran and **K.R. Balasubramanian**, "Dry sliding wear of laser hardened low alloy steel at room and elevated temperatures", **Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology**, 2013 227 (10) pp. 1138–1149 DOI: [10.1177/1350650113481530](https://doi.org/10.1177/1350650113481530) Impact factor: 0.907
20. P. Dinesh Babu & G. Buvanashakaran & **K. R. Balasubramanian**, "Experimental investigation of laser transformation hardening of low alloy steel using response surface methodology", **International Journal of Advanced Manufacturing Technology**, 2013 Vol.67: pp. 1883–1897 DOI: 10.1007/s00170-012-4616-z Impact factor: 1.568
21. Purushothaman Dinesh Babu, Gengusamynaidu Buvanashakaran, **Karupudaiyar R. Balasubramanian**, "Experimental Studies on the Microstructure and Hardness of Laser Transformation Hardening of Low alloy Steel", **Transactions of the Canadian Society for Mechanical Engineering**, 2012 Vol. 36, No. 3, pp. 241- 258

22. **K. R. Balasubramanian**, Suthakar T, Sankaranarayanan K, Buvanashakaran G, "Studies on Weld Shape Formation and Marangoni Convection in Nd:Yag Laser Welding", **International Journal of Mechatronics and Manufacturing Systems**, 2012, Vol. 5, Nos. 3/4, pp.226 - 246 DOI: 10.1504/IJMMS.2012.048230
23. **K. R. Balasubramanian**, T. Suthakar, K. Sankaranarayanan and G. Buvanashakaran, "Finite Element Analysis of Heat Distribution in Laser Beam Welding of AISI 304 Stainless Steel Sheet" **International Journal of Manufacturing Research**, 2012, Vol. 7, No. 1, pp 42-58 DOI:10.1504/IJMR.2012.045243
24. Nanda Naik Korra, **K.R. Balasubramanian**, "Parametric Optimization of TIG Welding on 316L Austenitic Stainless Steel by Grey-Based Taguchi Method", **Advanced Materials Research**, 2012 Vols. 383-390, pp 4667-4671 DOI: 10.4028/www.scientific.net/AMR.383-390.4667
25. M. Shahul Hameed, S. P. Sivapirakasam, **K.R. Balasubramanian**, R. Nagalakshmi, "Investigations on fume formation rate in shielded metal arc welding process using different electrodes", **Advanced Materials Research**, 2012 Vols. 383-390, pp 4672-4677 DOI: 10.4028/www.scientific.net/AMR.383-390.4672
26. **K. R. Balasubramanian**, T. Suthakar, K. Sankaranarayanan and G. Buvanashakaran, "Laser Welding Simulations of Stainless Steel Joints using Finite Element Analysis", **Advanced Materials Research**, 2012 Vols. 383-390, pp 6225-6230 DOI: 10.4028/www.scientific.net/AMR.383-390.6225
27. T. Suthakar, K. Sankaranarayanan, **K. R. Balasubramanian**, G. Buvanashakaran and K. Krishna murthy, "Effect of Peclet Number on the Thermo Capillary Convection and Molten Pool Shape Formation during Laser Welding Using CFD", **Advanced Materials Research**, 2012, Vols. 383-390, pp 6231-6235 DOI: 10.4028/www.scientific.net/AMR.383-390.6231
28. C. Anand Chairman, S. P. Kumaresh Babu, Muthukannan DuraiSelvam, **K. R. Balasubramanian**, "Investigation on two-body abrasive wear behavior of titanium carbide filled glass fabric-epoxy composites- a Box-Behnken approach", **International Journal of Engineering, Science and Technology**, 2011, Vol. 3, No. 4, pp. 119-129 DOI: 10.4314/ijest.v3i4.68547
29. Dinesh Babu, P., **Balasubramanian, K.R.** and Buvanashakaran, G., "Laser surface hardening: a review" **International Journal of Surface Science and Engineering**, 2011, Vol. 5, No. 2, pp. 131–151 DOI: 10.1504/IJSURFSE.2011.041398
30. P. Dinesh Babu and **K.R. Balasubramanian**, "Influence of Quenching Medium on Microstructure, Hardness and Elevated Temperature Sliding Wear of 45C8 Steel", **CiiT International Journal of Automation and Autonomous System**, July 2011
31. G.R.Kannan, **K.R.Balasubramanian**, S.P.Sivapirakasam, R.Anand, "Studies on biodiesel production and its effect on DI diesel engine performance, emission and combustion characteristics", **International Journal of Ambient Energy**, 1-15, **Taylor & Francis Publication**, 2011 DOI: 10.1080/01430750.2011.625722
32. S.P. Sivapirakasam, Jose Mathew, **K. R. Balasubramanian** & M. Surianarayanan, "Optimization of Machining Parameters and Environmental Emission of Electric Discharge Machining Process using Grey Relational Analysis", **International Journal of Materials, Manufacturing and Optimization (IJMMO)**, 2011 pp: 27-32, Vol.2, No.1,
33. M. Mohamedmusthafa, S. P. Sivapirakasam, M. Udayakumar, and **K.R. Balasubramanian**, "Effects of Al₂O₃ Coating on Diesel Engine Performance, Combustion, and Emission Characteristics Fueled by Pongamia Methyl Ester and Its Blends with Diesel", **AIChE - Environmental Progress & Sustainable Energy Journal**, 2012, Vol. 31, pp: 147–156. DOI: 10.1002/ep.10534

34. **K.R.Balasubramanian**, G. Buvanashekar, K. Sankaranarayanan, "Modeling of laser beam welding of stainless steel sheet butt joint using neural networks", **CIRP Journal of Manufacturing Science and Technology**, 2010 Vol. 3, No.1, pp. 80-84. DOI: 10.1016/j.cirpj.2010.07.001
35. **K.R. Balasubramanian**, K. Sankaranarayanan, T. Suthakar, S.P. Sivapirakasam and G. Buvanashekar, "Mathematical modelling and optimisation of laser welding of butt joints", **International Journal of Computational Materials Science and Surface Engineering**, 2010 Vol. 3, No. 4, pp. 321-335. DOI: 10.1504/IJCMSSE.2010.03622
36. R. Nagalakshmi, S. P. Sivapirakasam, **K.R.Balasubramanian** and P.V.N. Maheswara Rao, "A Model for Prediction of Fume Formation Rate in Gas Metal Arc Welding" **WRI JOURNAL**, 2010, Volume 31 No.2, pp 14-21.
37. **K.R.Balasubramanian**, G. Buvanashekar, K. Sankaranarayanan, "Effect of Process Parameters on Weld Profile and Solidification Structure for Laser Joining of Austenitic Stainless Steel Sheets", **Journal on Manufacturing Engineering**, 2008, Issue 4, pp 30-34,
38. **K.R. Balasubramanian**, N. Siva Shanmugam, G. Buvanashekar and K. Sankaranarayanan, "Numerical and Experimental Investigation of Laser Beam Welding of AISI 304 Stainless Steel Sheet" **Advances in Production Engineering & Management Journal**, 2008, Vol 3, No. 2, pp 93-105,
39. **K.R.Balasubramanian**, G. Buvanashekar, K. Sankaranarayanan, "Mathematical and ANN modeling of Nd:YAG laser welding of thin SS sheets" **Journal on Manufacturing Engineering**, 2007, Issue 2, pp 56-60,
40. **K.R. Balasubramanian**, K. Sankaranarayanan, G. Buvanashekar "Analysis of Laser welding parameters using artificial neural network" **International Journal for the Joining of Materials**, 2006, Volume 18 No. 3/4, pp 99-104,
41. G. Buvanashekar, **K.R. Balasubramanian**, and K. Sankaranarayanan "Characterization of process parameters for Laser welding of stainless steel", **WRI JOURNAL**, 2006 Volume 27 No.2, pp 14-21,

Conferences

1. K Premkumar and **K R. Balasubramanian**, "Oxidation Resistance Of HVOF Ni-Cr-TiO₂ Powder Coating on SA 213 T22 Alloy Steel at Higher Temperature", International Conference on Recent Innovations in Production Engineering (RIPE 2017), held at Anna University (MIT campus), Chennai, 24 -25 March, 2017.
2. K Premkumar and **K R. Balasubramanian**, "High Temperature Cyclic Oxidation Behavior of HVOF Sprayed Cr₃C₂-20%TiO₂ Coatings on SA 213 T22 Boiler Steel", International Conference on Recent Innovations in Production Engineering (RIPE 2017), held at Anna University (MIT campus), Chennai, 24 -25 March, 2017.
3. Ajith Krishnan.R, **K.R.Balasubramanian**, S. Suresh, "Transient flow boiling performance of Al₂O₃-Water nanofluid in parallel microchannels", International conference on Nano for Energy and Water, NEW 2017, University of Petroleum and Energy studies, Dehradun, India during 22-24 Feb 2017- ISBN: 978-81-928068-4-6
4. K Premkumar and **K R. Balasubramanian**, "Evaluation of Cyclic Oxidation Behaviour and Mechanical Properties of Nanostructured Composite HVOF coatings on SA 210 Grade C Boiler Materials at 900 °C", International Conference on Membrane Technology and its Applications (MEMSEP 2017), held at National Institute of Technology, Tiruchirappalli, 21-23 February, 2017.

5. K Premkumar and **K R. Balasubramanian**, "Investigation of Hot Corrosion Behaviour of HVOF Sprayed Nanostructured Cr₃C₂-Ni-Cr Coating On Boiler Material at Elevated Temperature", International Conference on Membrane Technology and its Applications (MEMSEP 2017), held at National Institute of Technology, Tiruchirappalli, 21-23 February, 2017
6. **K.R.Balasubramanian**, Ajith Krishnan R, S Suresh, "Heat Transfer Enhancement and Suppression of Flow Boiling Instability in a Compact Channel", EMN Meeting on Microfluidics and Nanofluidics, Duabi, April 05-08, 2016
7. K.C.Ganesh, M.Vasudevan, **K.R.Balasubramanian**, P.Vasantharaja, Conductive mode heat transfer analysis of TIG and activated-TIG welding process for various depth-to-width ratio of weld bead profile in type 316LN stainless steel, International Conference on Advances in Materials, Manufacturing and Applications, April 9-11, 2015 - NIT, Trichy.
8. **K. R. Balasubramanian**, attended one week coordinator's workshop on Fluid Mechanics conducted by IIT Kharagpur during 11th March to 15th March, 2014.
9. Participated in the 28th Indian Engineering Congress, Organized by Institution of Engineers (India) at Chennai during 20th to 22nd December 2013.
10. **K. R. Balasubramanian**, S. Suresh and S. P. Sivapirakasam, Heat Transfer Enhancement Using Nanofluid In A Serpentine Passage, International Conference on Advance Research in Mechanical, Aeronautical And Civil, Sep 7, 2013 Pattaya, Thailand. pp. 65-69.
11. S. P. Sivapirakasam, Sreejith Mohan, **K. R. Balasubramanian**, M. Surianarayanan, Respirable fume analysis during the flux cored arc welding of 316L(N) Austenitic stainless steel, International Conference on Advance Research in Mechanical, Aeronautical And Civil, Sep 7, 2013 Pattaya, Thailand. Pp.70-74.
12. S. P. Sivapirakasam, R. Anand, G. R. Kannan and **K. R. Balasubramanian**, Optimization of Biodiesel Production Using RSM and Study of Combustion Characteristics on DI Diesel Engine, ASME 2012 International Mechanical Engineering Congress and Exposition Volume 6: Energy, Parts A and B, Houston, Texas, USA, November 9–15, 2012
13. T. Suthakar, **K. R. Balasubramanian** and K. Sankaranarayanassamy, Multi Objective Optimization of Laser Welding Process Parameters by Desirability Approach of Design of Experiments, ASME 2012 International Mechanical Engineering Congress and Exposition, Volume 3: Design, Materials and Manufacturing, Parts A, B, and C, Houston, Texas, USA, November 9–15, 2012.
14. **K. R. Balasubramanian**, R. Anand, B. Venkatesh, G. R. Kannan, and S. P. Sivapirakasam, Study on Performance and Emission Characteristics of DI Diesel Engine Fuelled With Deccan Hemp Methyl Ester, ASME 2012 International Mechanical Engineering Congress and Exposition Volume 6: Energy, Parts A and B, Houston, Texas, USA, November 9–15, 2012
15. **K. R. Balasubramanian**, G. R. Kannan and R. Anand 'Effect of Preheated Waste Cooking Oil on the Performance and Emissions in a DI Diesel Engine', Paper Id.20100438. PetroTech-2010, 9th International Oil and Gas Conference and Exhibition, New Delhi. October 31 – November 3, 2010.
16. **K. R. Balasubramanian**, T. Suthakar, K. Sankaranarayanassamy, G. Buvanashakaran, S.P. Sivapirakasam and Dileep Reddy K, 'Analysis of Heat Transfer During the Laser beam welding of AISI 304 Stainless Steel using CFD', International Welding Symposium (IWS 2k10), pp 391-399, Bombay Exhibition Centre –Mumbai, 10-12 February 2010.
17. S. P. Sivapirakasam, R. Naga Lakshmi, **K. R. Balasubramanian** and P.V. N. Maheswara Rao, 'Assessment of welding fumes using ventilation parameters during GMAW welding

- Process', International Welding Symposium (IWS 2k10), pp 463-471, Bombay Exhibition Centre –Mumbai, 10-12 February 2010.
18. Jose Mathew, S.P. Sivapirakasam, **K. R. Balasubramanian** and K. Renjith, 'Analysis of Total Aerosol Emission from electrical Discharge Machining Process', pp 1024-1028, Proceedings of the International Conference on Advances in Mechanical Engineering, August 3-5, 2009, S.V. National Institute of Technology, Surat, Gujarat, India.
 19. **K. R. Balasubramanian**, N. Siva Shanmugam, G. Buvashekar and K. Sankaranarayanan, 'Finite element simulation for Laser Beam Welding of Austenitic Stainless Steel Sheet', International Welding Symposium (IWS 2k8), paper no. 58, pp 1-10, Pragati Maidan, New Delhi, 13th -15th, February 2008.
 20. **K. R. Balasubramanian**, K. Sankaranarayanan and G. Buvashekar, 'The Use of Nd:YAG Lasers in Future Automobile Applications' National Conference on "Emerging Trends in Automobile Technology" SEDAN 2007, Bharathidasan Institute of Technology, Bharathidasan University, Tiruchirappalli, 8th & 9th February 2007.
 21. **K. R. Balasubramanian**, K. Sankaranarayanan and G. Buvashekar, 'Modeling Of CW Nd:Yag Laser Welding Of Stainless Steel Using ANN', Proceedings of the National Conference on FACTORY AUTOMATION, ROBOTICS AND SOFT COMPUTING, National Institute of Technology, Warangal, Andhra Pradesh, pp 211-216. 18th & 19th January 2007.
 22. **K. R. Balasubramanian**, K. Sankaranarayanan, G. Buvashekar, and G. Balaji, 'Effect of Laser Welding Parameters on Bead Profile of Austenitic Stainless Steel', Proceedings of the International conference on Advances in Mechanical Engineering, ICAME 2006, SRM University, Chennai, India, pp 235 – 239, 14th -16th December 2006.
 23. K. Sankaranarayanan, **K. R. Balasubramanian**, V. Ravikumar, 'Thermal Analysis of the influence of an annular fin with different profiles in a ceramic tube of heat transfer equipment', Proceedings of the ISTE Sponsored National Conference On Recent Advances in Mechanical Engineering, NCRAME-06, Rayat Institute of Engineering & Information Technology, Nawanshahr, Punjab, pp 18-27, September 8-9, 2006.
 24. **K. R. Balasubramanian**, G. Buvashekar and K. Sankaranarayanan, 'Comparison Of Multiple Regression Analysis And Artificial Neural Network For Modeling Of Nd:Yag Laser Cladding' Proceedings of the International Conference on Modeling and Simulation 2006, Kuala Lumpur, Malaysia, Paper No.152. 3rd -5th April 2006.

Book Publications / Chapter Contribution

1. Authored a chapter "Laser Transformation Hardening of Steel" in the book "Manufacturing Engineering" published by Nova Science Publishers, Inc, edited by Prof. J. Paulo Davim, University of Aveiro, Portugal (2015) ISBN: 9781634633789, pp.213-240.
2. Editor of the Proceedings of International Mechanical Engineering Congress (IMEC) 2014, "Advances in Mechanical Engineering", Published by Knowledge Curve, Chennai, ISBN 978-93-84389-01-7.
3. Guest Editor of "Dynamics of Machines and Mechanisms, Industrial Research" published in the Journal "Applied Mechanics and Materials" ISBN-13: 978-3-03835-163-4, the Proceedings of International Mechanical Engineering Congress (IMEC) 2014.
4. Authored a chapter "Modeling and Simulation of Laser Welding" in the book 'Lasers in manufacturing' published by ISTE-Wiley, U.K edited by Prof. J. Paulo Davim, University of Aveiro, Portugal. ISBN: 9781848213692. pp. 203-246.

