Resumé

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DATE OF BIRTH: October 2, 1960

EDUCATION

Ph.D., Mechanical Engineering, 1992, Columbia University, New York.
M. Phil., Mechanical Engineering, 1990, Columbia University, New York.
M.Tech., Mechanical Engineering, 1987, Indian Institute of Technology, Madras.
B.Tech., Mechanical Engineering, 1983, Indian Institute of Technology, Kharagpur.

RESEARCH AND PROFESSIONAL EXPERIENCE

From	To	Position
3/2007	Present	***Professor (Department Chair since March 2015)*** ***J.C.. Bose National Fellow (January 2017 -)*** ***(INAE Chair Professor from April 2012 to March 2014)*** Dept. of Mechanical Engineering, Indian Institute of Science, Bangalore,
9/2001	3/2007	***Associate Professor,*** Dept. of Mechanical Engineering, Indian Institute of Science, Bangalore,
10/1996	9/2001	***Assistant Professor,*** Dept. of Mechanical Engineering, Indian Institute of Science, Bangalore,
8/1995	8/1996	***Assistant Professor*** Department of Mechanical Engineering, Tennessee Technological University, Cookeville, TN
9/1993	7/1995	***Lecturer,*** Department of Mechanical Engineering, Columbia University, New York City
9/1992	8/1993	**National Research Council Postdoctoral Fellow,** Naval Postgraduate School, Monterey
1/1987	9/1987	**Research Associate,** TATA Energy Research Institute (TERI), New Delhi
8/1983	7/1985	**Project Engineer** , FLAKT INDIA LTD., Calcutta

Visiting positions:

May 2000 – June 2000 **Visiting Professor**, University of Maryland, College Park, MD, USA.
Jan. 2004 – Feb. 2004 **Visiting Faculty**, Nanyang Technological University, Singapore.

RESEARCH INTERESTS:

- Solar thermal technologies
- Computational Fluid Dynamics (CFD)
- Advanced cooling technologies (adsorption cooling, loop heat pipes, phase change materials)

- Semi-solid materials processing, squeeze casting, advanced casting technologies for light weighting

AWARDS / PRIZES

- J.C. Bose National Fellowship Award, 2017
- IIT Madras Distinguished Alumnus Award, 2017.
- IIT Kharagpur Distinguished Alumnus Award, 2015.
- Indian National Academy of Engineering Outstanding Teacher Award, 2014.
- Fellow, Indian National Science Academy (INSA) (elected in 2014).
- Fellow, National Academy of Sciences (NASI) (elected in 2014).
- Fellow, Indian Academy of Sciences (elected in 2012).
- Fellow, American Society of Mechanical Engineers (ASME); (elected in 2011).
- Fellow, Indian National Academy of Engineering (INAE) (elected in 2005).
- VASVIK Award for Excellence in Industrial Research (Category: Mechanical and Structural Sciences and Technology), 2010.
- IISc Alumni Award for Excellence in Research, IISc, 2013.
- Indian National Academy of Engineering (INAE) Chair Professorship Award, 2012-2014.
- Overseas Attachment Fellowship Award for visit to Nanyang Technological University, Singapore, 2004.
- Best paper award conferred at the International Symposium on Innovative Materials for Processes in Energy Systems (IMPRES2010), 29th November- 1st December, 2010, Singapore
- Best Paper Award, 7th ASME/ISHMT Heat and Mass Transfer Conference, Guwahati (2006).
- Best Technical Paper Award at the First FLUENT CFD Conference for India & South East Asia (2003).
- Best Paper Award, 5th ASME/ISHMT Heat and Mass Transfer Conference, Kolkata (2002).
- Best Paper Award, 4th ASME/ISHMT Heat and Mass Transfer Conference, Pune (2000)
- National Research Council (USA) Research Associateship Award, 1992-93
- Bakhmeteff Award for Research in Fluid Mechanics, Columbia Univ., 1990-91
- Best Teaching Assistant Award, Dept. of Mechanical Engineering, Columbia University, 1989.

INVITED KEYNOTE/PLENARY LECTURES (selected)

- Oct. 26, 2016, **Keynote Speaker** at the IVth International Symposium on Innovative Materials for Processes in Energy Systems 2016 (IMPRES 2016), Taormina, Italy. Talk title: “High Temperature Receivers and Storage Materials for Concentrating Solar Power”.
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- August 14, 2014, **Keynote Speaker** at the 15th International Heat Transfer Conference (IHTC-15), Kyoto, Japan. Talk title: “Heat Transfer Challenges in Novel Power Cycles for Concentrating Solar Power”.
- December 12, 2013, **Plenary Lecture** at the International Conference on Advances in Energy Research, Mumbai, entitled: “Distributed Solar Thermal Technologies for India: Suitability and Challenges”.
- Oct 23 2012, **Invited Lecture** at the Indo Swiss Symposium on Renewable Energies and Rational Energy End-use, Lausanne, Switzerland, entitled: “Solar Thermal Technologies at Small and Medium Scales”.
- Nov. 29 –Dec. 1, 2012, **Invited Lecture** at the Indo French Seminar on “Energies for the Future”, Paris, France.
- April 30, 2012, **Invited Lecture** at the 3rd EU-India (EICOON) School on Science and Technology of Renewable and Clean Energy Sources, Kolkata, entitled: “Solar Thermal Technologies”.
- Nov. 26, 2012, **Invited Lecture** at the Indo German Workshop on Integrated Computational Materials Engineering, Pune, entitled: “Semisolid Manufacturing of Aluminium Alloy Components for Automobiles”.

- November 22, 2012, **Invited Lecture** at the Fifth International Conference on Solidification Science and Processing (ICSSP5), Bhubaneswar, entitled: “Scaling analysis and modeling of semisolid slurry formation using cooling slope”.
- Nov. 4, 2012, **Invited Lecture** at the Seventy-eighth Annual Meeting of the Indian Academy of Sciences, Dehradun, entitled: “Multiphase Convection during Solidification of Binary Alloys”.
- Nov. 29, 2010: **Invited Lecture** at the International Symposium on Innovative Materials for Processes in Energy Systems (IMPRES2010), entitled, “Performance of PCM-based heat sinks subjected to cyclic heat load”.
- October 29, 2010: **Plenary lecture** at International Conference on Modeling Optimization and Computing, NIT Durgapur, India, entitled “Cooling of Electronics with Phase change Materials”.
- February 5, 2010, **Invited Lecture** at the 58th Indian Foundry Congress, Ahmedabad , entitled, “Development of a Thixocasting Process for a Near Net Shape Automobile Component”.
- Feb. 13, 2009, **Invited Lecture** at the 57th Indian Foundry Congress, Kolkata, entitled “Semisolid Manufacturing”.
- Nov. 21, 2009, **Invited Lecture** at the 4th International Conference on Solidification Science and Processing (ICSSP4), IIT Madras, entitled “Influence of Solid Phase Movement and Melt Convection on Macrosegregation and Microstructure Formation”.

PROJECTS / RESEARCH GRANTS

(Total value of funded projects: ~ Rs. 40 crores.)

Title	Funding Agency	Duration
Development of High Efficiency Receiver for Supercritical CO_2 Integrated with Static Focus Parabolic Dish (PI)	MNRE	2016-2018
Integral Fin Extruded Aluminium Flat Plate Solar Water Heater	DST ; Aditya Birla	2015-2017
Chemi-Sorption Thermal Energy Storage- Application of Metal Hydrides	DST	2015-2018
Solar Cooling and Production of Potable Water with 2-Stage Silica Gel – Water Adsorption system (PI)	DST	2012-2015
Solar Energy Research Institute for India and the United States (SERIIUS) – a consortium under the Joint Clean Energy Research and Development Centre (JCERDC) (Co-PI)	Govt. of India (DST&DBT) US Government (DOE)	2012-2016
Development of a Mechanistic Model for Shrinkage Prediction (PI)	General Motors, USA	2010-1014
Process Development in Semisolid Forming and Squeeze Casting of Aluminium Alloy Components for Automobile (PI)	Consortium project with TIFAC, TVS Motors, Sundaram Clayton, Mahindra and Mahindra	2008-2012
Microstructural characterization of aluminium alloy billets cast in a linear electromagnetic stirrer (PI)	DST, Ministry of Mines	2008-2012

Study of Die Filling during Semisolid Casting of Aluminium Components (PI)	DST, Ministry of Mines	2008-2012
Determination of parameters for semisolid processing of aluminium billets (PI)	Dept. of Science and Technology (DST)	2007-2008
Role of solid phase movement and re-melting on macrosegregation in binary alloy solidification process (PI)	General Motors (USA)	2005-2009
National Facility for Semisolid Forming* (Co-PI)	Ministry of Mines, DST, DRDO	2001-2007
Incabin and underhood thermal analysis (PI)	TATA Motors	2005-2007
Use of phase change materials for cooling of automotive electronics (PI)	Delphi	2005
Microstructure and modelling of the fusion zone during welding of Al-Mg castings to Al-Mg extrusions (PI)	General Motors (USA)	2001-2004
Development of Support System for Cooling of Electronic Equipment (co-PI)	DRDO	2001-2005
Modelling of Transport Phenomena during Laser Surface Alloying of Dissimilar Metals (PI)	CSIR	1999-2002
A Finite-Volume Based Computational Procedure for Calculation of Radiation Heat Transfer in Spacecraft Application (PI)	ISRO	1997-1999
Process Modelling and Evaluation of Weld Metal Microstructures and Properties in GTA and GMA Welding (PI)	DST	1997-2000

INDUSTRIAL CONSULTANCY

Title	**Client**	**Duration**
Thermal Management of Phase Control Modules used in Radar	LRDE (DRDO)	2006
Thermal and Mechanical Design of Electronic Equipment	HCL Technologies, Bangalore	2006 – 2008
Evaluation of Cooling Tower Performance	RVUNL, Kota, Rajasthan	2005
Evaluation of Cooling Tower Performance	Paharpur Cooling Tower, Kolkata	2004-2005
Training on Thermodynamics of Power Plant and Cooling Towers	Karnataka Power Corporation Ltd., Raichur	2004
Training on CFD for Data Centre Modelling and Design	Hewlett Packard, Bangalore	2003
Radiation Heat Transfer Model for Wire-rod Mill Furnace Automation	TATA STEEL, Jamshedpur	2000
Thermal Evaluation and Study of Identical Aluminium Frame and Plastic Frame Double Glaze Windows to find out U-values	Aluminium Association of India	1998

OTHER PROFESSIONAL ACTIVITIES

- Vice President, Indian Society for Heat and Mass Transfer (2010-2013)
- Member, International Advisory Committee of "Fast Forward with Solar Mission", FFSM-2014
- Member, Editorial Board, IEEE Transactions on Components and Packaging Technology
- Member, Editorial Board, ASME Journal of Electronics Packaging
- Member, Editorial Board, Journal of Energy, Heat and Mass Transfer
- Member, PAC, Mechanical and Civil engineering, Department of Science and Technology (DST), 2012 – present
- Member, PAC, Solar energy Research Initiative (SERI), Department of Science and Technology (DST), 2012 - present
- Member of Technical Advisory Group, Centre for Railway Research (CRR), IIT Kharagpur
- Member of Technical Advisory Group, ARCI's Centre for Solar Energy Materials
- Member, Research Council, IIT Bhubaneshwar
- Senior Research Advisor, TKM College of Engineering, Kollam, Kerala
- Member, International Scientific Committee, International Conferences on Semisolid Processing of Alloys and Composites, 2010 – present.
- Member, International Scientific Committee, 19th Solar Power and Chemical Energy Systems (SolarPACES) Conference, Las Vegas, September 2013.
- Member, International Scientific Committee, International Symposium on Innovative Materials for Processes in Energy Systems 2013(IMPRES2013), Fukuoka, Japan
- Member, International Scientific Committee, International Symposium on Innovative Materials for Processes in Energy Systems 2013(IMPRES2010), 29 November 2010 - 1 December 2010, Singapore
- Organizing Chair, Indo-US Frontier of Engineering Symposium, Irvine, California, 2008

Membership in professional societies:
- American Society of Mechanical Engineers (Fellow grade).
- Indian National Science Academy (INSA) (Fellow grade).
- National Academy of Sciences (NASI) (Fellow grade)
- Indian Academy of Sciences (Fellow grade).
- Indian National Academy of Engineering (Fellow grade).
- Life Member, Indian Society for Heat and Mass Transfer.
- Life Member, Investment Casting Society of India
- Life Member, Aluminium Association of India

Reviewer of:
International Journal of Heat and Mass Transfer, International Communications in Heat and Mass Transfer, Metallurgical and Materials Transactions, Journal of Materials Science, Journal of Fluids Engineering (ASME), Journal of Heat Transfer (ASME), Journal of Energy Resources Conversion (ASME), Journal of Electronics Packaging (ASME), IEEE Transactions on Components and Packaging, International Journal of Numerical Methods for Heat and Fluid Flow, International Journal of Thermal Sciences, National Heat Transfer Conference (USA), International Heat Transfer Conference, International Mechanical Engineering Congress and Exposition, ASME/ISHMT International Heat and Mass Transfer Conference.

ADMINITRATIVE POSITIONS and COMMITTEE ASSIGNMENTS:
- Chairman, Dept. of Mechanical Engineering, IISc (March 2015 – present)
- Co-PI from India, Solar Energy Research Institute for India and the United States (SERIIUS) *www.seriius.org*
- Co-Director, General Motors-IISc Collaborative Research Laboratory (2010 - 2012)
- Coordinator, IISc Solar Energy Programme under IISc Energy Initiative (2011 -)
- Co-Founder, National Facility for Semisolid Forming, IISc
- Member, IISc Buildings Committee, IISc (2011-14)
- Member,IISc Power Committee, IISc (2007-2010)
- Convener, Department Curriculum Committee (DCC), ME Dept, IISc (2006-2011)
- Member, Mechanical Engg. Departmental Curriculum Committee, IISc (1997-2005)
- Convenor, Mechanical Engg. Departmental Seminar Committee (1998)

- Member, Mechanical Engg. Departmental Infrastructural Committee (2000-2005)
- Coordinator, IISc-General Motors Collaborative Research Laboratory (CRL) (2001)
- Undergraduate Committee, Dept. of Mechanical Engineering, Columbia University, 93-94, 94-95.
- Laboratory Committee, Dept. of Mechanical Engineering, Columbia University, 1993-94, 1994-95
- Graduate Committee, Dept. of Mechanical Engineering, Columbia University, 94-95.
- Basic Engineering Faculty Advisor, Tennessee Technological University, 1995-96.

COURSES TAUGHT

Courses taught at IISc, Bangalore (1997 – present)
Thermodynamics, Computational Heat Transfer and Fluid Flow, Convective Heat Transfer, Thermal Management of Electronics.
Courses taught at Columbia University, USA (1993-1995)
Heat Transfer, Advanced Thermodynamics, Design of Thermal Systems, Mechanical Engng. Lab. I, Mechanical Engng. Lab. III .
Courses taught at Tennessee Technological University, USA (1995-1996)
Heat Transfer, Design of Thermal Systems..

PATENTS

1) 1) "A Device for Non-intrusive Detection of Liquid Metals/Alloys and a Method Thereof", *(Indian Patent Application No. 01074/CHE/2007; Patent No. 251300 Awarded on 9/3/2012)*

2) "A Device for Casting and Reheating of Metals/Alloys Electromagnetic Stirring to Produce Billets with Non-dendritic Globular Microstructure". *(Indian Patent Application No. 03136/CHE/2007; Patent No. 257202, Awarded on 11/09/2013)*

PUBLICATIONS (see Appendix A for full list)

(Total International Journal Papers: 168 approx.)

THESIS SUPERVISION (see Appendix B for full list)

Thesis Guidance

- **Total PhD Thesis guidance : 31** (23 completed, 8 in progress)
- **Total Masters Thesis/Project guidance : 55** (53 completed, 2 in progress)

Appendix A

List of Publications

Books and book chapters

1. P. Dutta, "COMPUTATIONAL FLUID DYNAMICS AND HEAT TRANSFER", Web based course material under the National Programme on Technology Enhanced Learning (NPTEL, Phase 2), 2012.

2. P. Dutta, "HEAT AND MASS TRANSFER", Web based course material under the National Programme on Technology Enhanced Learning (NPTEL, Phase 1), 2006.

3. P. Dutta and K. Srinivasan, "THERMODYNAMICS", Web based course material under the National Programme on Technology Enhanced Learning (NPTEL, Phase 1), 2006.

4. K. Srinivasan, M. Prasad and P. Dutta, "Activated Carbon Based Adsorption Thermal Compression Systems for Cryocooling, Refrigeration and Gas Storage", in Advances in Adsorption Technology, editors: K. C. Ng and B. B. Saha; *Publisher: Nova Science Publishers. Publication date: 2010.* (ISBN**:** 978-1-61761-759-1).

5. Y. Joshi, M. Patterson and P. Dutta, *"*Thermal Characterization and Management" in INTRODUCTION TO SYSTEM-ON-PACKAGE (SOP), editor Rao R. Tummala. *Publisher: McGraw-Hill, NY, USA Publication date: 2008* (ISBN-10:0071459065).

6. P. Dutta and S. Chakraborty, *"*Continuum simulation: Finite Volume Method" in Microfluidics and Nanofluidics Handbook; editors: S. K. Mitra, S. Chakraborty. *Publisher: CRC Press/Taylor & Francis Group. Publication date: Aug. 2011* (**ISBN:** 9781439816714).

Journal Publications:

J1. Jesus Ortega, Sagar Khivsara, Joshua Christian, Clifford Ho, Julius Yellowhair, Pradip Dutta, "Coupled modeling of a directly heated tubular solar receiver for supercritical carbon dioxide Brayton cycle: Optical and thermal-fluid evaluation", *Applied Thermal Engineering*, Volume 109, Part B, 25 October 2016, Pages 970–978.

J2. Jesus Ortega, Sagar Khivsara, Joshua Christian, Clifford Ho, Pradip Dutta, "Coupled modeling of a directly heated tubular solar receiver for supercritical carbon dioxide Brayton cycle: Structural and creep-fatigue evaluation", *Applied Thermal Engineering*, Volume 109, Part B, 25 October 2016, Pages 979–987

J3. S Dalal, G Tomar, P Dutta, "Numerical study of driven flows of shear thinning viscoelastic fluids in rectangular cavities", *Journal of Non-Newtonian Fluid Mechanics*, Volume 229, March 2016, Pages 59–78

J4. P Das, SK Samanta, S Bera, P Dutta, "Microstructure Evolution and Rheological Behavior of Cooling Slope Processed Al-Si-Cu-Fe Alloy Slurry", *Metallurgical and Materials Transactions A*, May 2016, Volume 47, Issue 5, pp 2243–2256

J5. P Kumar, P Dutta, SS Murthy, K Srinivasan, "Solar driven carbon dioxide Brayton cycle power generation with thermal compression", *Applied Thermal Engineering*, Volume 109, Part B, 25 October 2016, Pages 854–860

J6. Ajinkya Meshram, Ankush Kumar Jaiswal, Sagar D. Khivsara, Jesus D. Ortega, Clifford Ho, Rucha Bapat, Pradip Dutta, "Modeling and analysis of a printed circuit heat exchanger for supercritical CO_2 power cycle applications", *Applied Thermal Engineering*, Volume 109, Part B, 25 October 2016, Pages 861–870

J7. P Das and P Dutta, "Phase field modelling of microstructure evolution and ripening driven grain growth during cooling slope processing of A356 Al alloy", *Computational Materials Science*, Volume 125, December 2016, Pages 8–19

J8. N Aswin, P Dutta, SS Murthy, "Screening of metal hydride pairs for closed thermal energy storage systems", *Applied Thermal Engineering*, Volume 109, Part B, 25 October 2016, Pages 949–957

J9. AK Jaiswal, S Mitra, P Dutta, K Srinivasan, SS Murthy, "Influence of cycle time and collector area on solar driven adsorption chillers", *Solar Energy*, Volume 136, 15 October 2016, Pages 450–459

J10. S Karagadde and P Dutta, "A comparison of time-scales governing the interaction and growth of hydrogen bubbles with a solidifying front", *International Communications in Heat and Mass Transfer*, Volume 79, December 2016, Pages 16–20

J11. S. D. Khivsara, V. Srinivasan, P. Dutta, "Radiative heating of supercritical carbon dioxide flowing through tubes", *Applied Thermal Engineering*, Volume 109, Part B, 25 October 2016, Pages 871–877

J12. Sandip Sarkar, Suvankar Ganguly, Pradip Dutta, "Thermally developing combined magnetohydrodynamic and electrokinetic transport in narrow confinements with interfacial slip", *International Journal of Heat and Mass Transfer*, Volume 100, September 2016, Pages 451–463.

J13. D. Samantaray, A. Chaudhuri, U. Borah, A.K. Bhaduri, P. Dutta, "Role of grain boundary ferrite layer in dynamic recrystallization of semi-solid processed type 304L austenitic stainless steel", *Materials Letters*, Volume 179, 15 September 2016, Pages 65–68.

J14. D. Samantaray, U. Borah, A.K. Bhaduri, P. Dutta, "Effect of semi-solid heat treatment on elevated temperature plasticity of 304L stainless steel", *Journal of Materials Science*, 51(9), 4306-4319

J15. K. C. Nayak and P. Dutta, Numerical investigations for leakage and windage heating in straight-through labyrinth seals, *ASME Journal of Engineering for Gas Turbines and Power* , Volume 138, Issue 1, 1 January 2016

J16. K. C. Nayak and P. Dutta, Effect of Rub-Grooves on Leakage and Windage Heating in Straight-Through Labyrinth Seals, *Journal of Tribology* ,Volume 138, Issue 2, 1 April 2016

J17. S. Mitra, P. Kumar, K. Srinivasan, P. Dutta, "Development and performance studies of an air cooled two-stage multi-bed silica-gel + water adsorption system", *International Journal of Refrigeration,* Volume 67, 2016, Pages 174–189.

J18. Sourav Mitra, N. Aswin, Pradip Dutta, "Scaling analysis and numerical studies on water vapour adsorption in a columnar porous silica gel bed", *International Journal of Heat and Mass Transfer*, Volume 95, April 2016, Pages 853–864.

J19. S. Mitra, K. Srinivasan, P. Kumar, P. Dutta, "Silica gel+ water adsorber chiller and desalination system: a transient heat transfer study", *ASME Journal of Thermal Science and Engineering Applications*, 8(2), 021014 (Jan 20, 2016).

J20. S. Mitra, P. Kumar, K. Srinivasan, P. Dutta, "Instrumentation and control of a two-stage 4-bed silica gel + water adsorption cooling cum desalination system", *Measurement*, 79(2016), pp. 29–43 (doi: 10.1016/j.measurement.2015.10.014).

J21. S. Mitra, P. Kumar, K. Srinivasan, P. Dutta, "Performance evaluation of a two-stage silica gel + water adsorption based cooling-cum-desalination system", *International Journal of Refrigeration*, 58(2015), pp. 186–198 (doi: 10.1016/j.ijrefrig.2015.06.018).

J22. S. K. Saha and P. Dutta, Performance Analysis of Heat Sinks With Phase-Change Materials Subjected to Transient and Cyclic Heating, *Heat Transfer Engineering*, Volume 36, Issue 16, 2 November 2015, Pages 1349-1359

J23. S. Mitra, S.T. Oh, B.B. Saha, P. Dutta, K. Srinivasan, "Simulation study on adsorption dynamics of cylindrical silica gel particles", *Heat Transfer Research*, 46-2(2015), pp. 123–140 (doi: 10.1615/HeatTransRes.2014007318).

J24. P. Das, S. K. Samanta and P. Dutta, "Rheological Behavior of Al-7Si-0.3Mg Alloy at Mushy State", *Metallurgical and Materials Transactions B*, Vol. 46, pp 1302-1313, 2015.

J25. Prosenjit Das, Sudip K. Samanta, Shashank Tiwari, Pradip Dutta, "Die Filling Behaviour of Semi Solid A356 Al Alloy Slurry During Rheo Pressure Die Casting", *Transactions of the Indian Institute of Metals*, vol. 68, pp 1215-1220, 2015.

J26. Shailesh Kumar Singh, K. Chattopadhyay, Pradip Dutta, "High-Temperature Workability of Thixocast A356 Aluminum Alloy", *Metallurgical and Materials Transactions A*, July 2015, Volume 46, pp 3248-3259

J27. SK Singh, G. Phanikumar, K Chattopadhyay, P Dutta, "Experimental and Numerical Studies on Friction Welding of Thixocast A356 Aluminum Alloy", *Acta Materialia*, vol. 73(0): pp.177 - 185, 2014.

J28. Anirban Bhattacharya, Apoorva Kiran, Shyamprasad Karagadde, Pradip Dutta, "An Enthalpy Method for Modeling Eutectic Solidification", *Journal of Computational Physics*, vol. 262 . pp. 217-230, 2014.

J29. P. Dutta, P. Kumar, K.C. Ng, S. Srinivasa Murthy, K. Srinivasan, "Organic Brayton Cycles with solid sorption thermal compression for low grade heat utilization, *Applied Thermal Engineering*, Volume 62, Issue 1, 10 January 2014, Pages 171–175.

J30. P. Das, S. K. Samanta, P. Kumar and P. Dutta, "Two Phase Flow Simulation of Semisolid Slurry Generation Process of A380 Al alloy", *ISIJ International* 54 (7), 1601-1610, 2014.

J31. A Bhattacharya, P Dutta, "Effect of shrinkage induced flow on binary alloy dendrite growth: An equivalent undercooling model", *International Communications in Heat and Mass Transfer, vol 57, pp.* 216–220, 2014.

J32. P. Das, M Kumar, SK Samanta, P Dutta, D Ghosh, "Semisolid Processing of A380 Al Alloy Using Cooling Slope", *Materials and Manufacturing Processes* 29 (4), 422-428, 2014.

J33. P. Das, SK Samanta, R Das, P Dutta, "Optimization of degree of sphericity of primary phase during cooling slope casting of A356 Al alloy: Taguchi method and regression analysis", *Measurement* , vol. 55, 605-615, 2014.

J34. Shailesh Kumar Singh, Prosenjit Das, Kamanio Chattopadhyay, P. Dutta, "Fracture property correlation of Rheocast (EMS) and Thixocast 6061 Aluminium alloy", *Solid State Phenomena* , vol. 217, 405-411, 2015.

J35. S. Mitra, P. Kumar. K. Srinivasan and P. Dutta, "Simulation study of a two-stage adsorber system", *Applied Thermal Engineering, vol. 72, pp.* 283–288, 2014.

J36. D Samantaray, V Kumar, AK Bhaduri, P Dutta, "Formation of annular austenitic ring between outer ferrite layer and solid globule in a semi-solid processed SS 304L", *Materials Letters*, vol. 135, pp. 127–130 , 2014.

J37. S. K. Saha and P. Dutta, "Performance Analysis of Heat Sinks with Phase Change Materials subjected to Transient and Cyclic Heating", *Heat Transfer Engineering* Volume , 36, pp. 1349-1359, 2015.

J38. K. Srinivasan, P. Dutta, S. Velasco, and J. White, , "On Isentropic Lines and Isentropic Exponents", *The Journal of Chemical Thermodynamics*, vol. 56, pp. 144-148, 2013.

J39. P. R. Chakraborty and P. Dutta, "Study of freckles formation during directional solidification under the influence of single-phase and multi-phase convection" *Transactions of the ASME: Journal Thermal Science and Engineering Applications,* 5 (2) , art. no. 021004, 2013.

J40. Bhattacharya, A., Karagadde, S., Dutta, P., "An equivalent undercooling model to account for flow effect on binary alloy dendrite growth rate", *International Communications in Heat and Mass Transfer* 47 , pp. 15-19, 2013

J41. Saha, S.K., Dutta, P., "Role of melt convection on optimization of PCM-based heat sink under cyclic heat load", *Heat Transfer Engineering* 34 (11-12) , pp. 950-958, 2013

J42. Bhattacharya, A., Dutta, P., "Role of convection in microstructure evolution during solidification" *Current Science* 105 (4) , pp. 480-485, 2013

J43. Barman, N., Dutta, P., "Rheology of A356 Alloy During Solidification Under Stirring", *Transactions of the Indian Institute of Metals*, February 2014, Volume 67, Issue 1, pp 101-104.

J44. Srinivasan, K., Dutta, P., Saha, B.B., Ng, K.C., Prasad, M., "Realistic minimum desorption temperatures and compressor sizing for activated carbon + HFC 134a adsorption coolers", *Applied Thermal Engineering* 51 (1-2) , pp. 551-559, 2013

J45. Tveito, K.O., Bedel, M., Založnik, M., Combeau, H., M'Hamdi, M., Kumar, A., Dutta, P., "Numerical study of the impact of inoculant and grain transport on macrosegregation and microstructure formation during solidification of an Al-22%Cu alloy", *IOP Conference Series: Materials Science and Engineering* 33 (1) , art. no. 012089, 2013.

J46. SK Singh, K Chattopadhyay, P Dutta, "Friction Welding of Thixocast A356 Aluminium Alloy", *Solid State Phenomena*, vol. 192 – 193, pp. 305-310, 2013.

J47. P. Das, S. K. Samanta, H. Chattopadhyay, B. B. Sharma and P. Dutta, "Eulerian two-phase flow simulation and experimental validation of semisolid slurry generation process using cooling slope", *Materials Science and Technology*, Volume 29, Number 1, pp. 83-92, 2013.

J48. Garg, P., Kumar P., Srinivasan K., Dutta P, "Evaluation of carbon dioxide blends with isopentane and propane as working fluids for organic Rankine cycles", *Applied Thermal Engineering*, Volume 52, 2013, pp 439-448.

J49. Garg, P., Kumar P., Srinivasan K., Dutta P., "Evaluation of isopentane, R-245fa and their mixtures as working fluids for organic Rankine cycles", *Applied Thermal Engineering,* Volume 51, 2013, pp 292-300.

J50. P. Das, S. K. Samanta, H. Chattopadhyay and P. Dutta, "Studies on Rheocasting Using Cooling Slope", *Solid State Phenomena,* vol. 192 – 193, pp. 341-346, 2013.

J51. P. Das, S. K. Samanta, H. Chattopadhyay, P. Dutta, and N. Barman, "Rheological Characterization of Semi-Solid A356 Aluminium Alloy", *Solid State Phenomena*, vol. 192 – 193, pp. 329-334, 2013.

J52. Anirban Bhattacharya and Pradip Dutta, "An Enthalpy-Based Model of Dendritic Growth in a Convecting Binary Alloy Melt", *International Journal of Numerical Methods for Heat and Fluid Flow*, 23 (7) , art. no. 17095727 , pp. 1121-1135, 2013.

J53. Karagadde, S., Sundarraj, S., Dutta, P., "A model for growth and engulfment of gas microporosity during aluminum alloy solidification process", *Computational Materials Science*, vol. 65, pp. 383-394, 2012.

J54. Shyamprasad Karagadde, Anirban Bhattacharya, Gaurav Tomar, and Pradip Dutta, "A coupled VOF–IBM–enthalpy approach for modeling motion and growth of equiaxed dendrites in a solidifying melt", *Journal of Computational Physics*, vol. 231, Issue 10, 2012, pp. 3987–4000.

J55. Arunn Narasimhan, B.V. K. Reddy, and P. Dutta, "Thermal management using the bi-disperse porous medium approach", *International Journal of Heat and Mass Transfer, vol. 55, No. 4, 2012, pp.538-546.*

J56. D. Vikas, S. Basu, and P. Dutta, In-situ measurements of concentration and temperature during transient solidification of aqueous solution of ammonium chloride using laser interferometry, *International Journal of Heat and Mass Transfer, vol. 55, No. 7-8, 2012, pp. 2022-2034.*

J57. G. R. Madhusudhana[1], Pradip Dutta, and K. N. Seetharamu, "Mixed convection adjacent to non-isothermal vertical surfaces", *International Journal of Heat and Mass Transfer,* Volume 55, Issues 17–18, August 2012, Pages 4580–4587.

J58. S. K. Saha and P. Dutta, "Thermal Management of Electronics using PCM-based Heat Sink Subjected to Cyclic Heat Load", *IEEE Transactions on Components, Packaging and Manufacturing Technology*, Part C, 2 (3), 2012, pp. 464-473.

J59. P. Kumar, H. Lakshmi and P. Dutta, "A Calorimetric Method for Solid Fraction Determination during Solidification of Aluminum Alloy in Presence of Linear Electromagnetic Stirring" *Transactions of the ASME: Journal Thermal Science and Engineering Applications, vol. 4* , art. no. 011006 *2012.*

J60. S. Velasco, J. White, K. Srinivasan, , and P. Dutta, "On the Waring and Riedel functions for the liquid-vapor coexistence curve", *Industrial & Engineering Chemistry Research,* Vol. 51(7), pp. 3197-3202, 2012.

J61. Srinivasan, K., Dutta, P., Ng, K., Saha, B., "Calculation of heat of adsorption of gases and refrigerants on activated carbons from direct measurements fitted to the Dubinin-Astakhov equation", *Adsorption Science and Technology* 30 (7) , pp. 549-565, 2012

J62. Amrit Ambirajan, Abhijit A. Adoni, Jasvanth V. S., A. R. Anand, D. Kumar, and P. Dutta, "Loop Heat Pipes: A review of fundamentals, operation and design", *Heat Transfer Engineering*, vol. 33 (4-5) pp. 387-405, 2012. **(Invited review article).**

J63. Abhijit A. Adoni, V. S. Jasvanth, Amrit Ambirajan, Dinesh Kumar, D. R. Bhandari, K. Badarinarayana and Pradip Dutta, " Evaporation Heat Transfer Coefficient in a Capillary Pumped Loop for Different Working Fluids", *Heat Transfer Engineering*, vol. 33, No. 9, 2012, pp. 765-774.

J64. P. Das, S. K. Samanta, H. Chattopadhyay, and P. Dutta, "Effect of pouring temperature on cooling slope casting of semi-solid Al-Si-Mg alloy", Acta Metallurgica Sinica, vol. 25, pp. 329-339, 2012

J65. Barman, N., Dutta, P., "Evolution of Microstructure During Solidification of an Aluminium Alloy Under Stirring", *Transactions of the Indian Institute of Metals*, vol. 65, pp. 683-687, 2012

J66. Das, P., Samanta, S.K., Venkatpathi, B.R.K., Chattopadhyay, H., Dutta, P., "Microstructural Evolution of A356 Al Alloy During Flow Along a cooling Slope", *Transactions of the Indian Institute of Metals*, vol. 65, pp. 669-672, 2012

J67. Kund, N.K., Dutta, P., "Scaling Analysis of Solidification of Liquid Aluminum Alloy Flowing on Cooling Slope", *Transactions of the Indian Institute of Metals*, vol. 65, pp. 587-594, 2012

J68. K. Srinivasan, B. B. Saha, K.C. Ng, P. Dutta and M. J. Brear, 'Thermodynamic property slopes from primary measurements", International Journal of Mechanical Engineering Education, Volume 40, Number 1, pp. 79-91, 2012.

J69. K. Srinivasan, B.B. Saha, K.C. Ng, and P. Dutta, A method for the calculation of the adsorbed phase volume and pseudo-saturation pressure from adsorption isotherm data on activated carbon, *Physical Chemistry and Chemical Physics, vol.* 13, pp. 12559-12570, 2011

J70. Prodyut R. Chakraborty and Pradip Dutta, A Generalized Enthalpy Update Scheme for Solidification of a Binary Alloy with Solid Phase Movement, *Metallurgical and Materials Transactions B, vol.* 42, pp. 1075-1079, 2011

J71. Arvind Kumar, Mike. J. Walker, Suresh Sundarraj and Pradip Dutta, Grain Floatation During Equiaxed Solidification of an Al-Cu Alloy in a Side-Cooled Cavity: Part I-Experimental Studies, *Metallurgical and Materials Transactions B, vol.* 42, pp. 825-836, 2011

J72. Arvind Kumar, Mike. J. Walker, Suresh Sundarraj and Pradip Dutta, Grain Floatation During Equiaxed Solidification of an Al-Cu Alloy in a Side-Cooled Cavity: Part II-Numerical Studies, *Metallurgical and Materials Transactions B, vol.* 42, pp. 783-799, 2011

J73. R. Pardeshi, A. K. Singh, V. R. Voller and P. Dutta, A Dual Scale Model for Macrosegregation in Alloy Solidification, N*umerical Heat Transfer Part A- Applications, vol.* 59, 934-953, 2011

J74. S. K. Saha and P. Dutta, "Effect of Melt Convection on Optimum Thermal Design of Heat Sinks with Phase Change Material", *Journal of Enhanced Heat Transfer, vol. 18, pp.* 249-259, 2011.

J75. P. R. Chakraborty and P. Dutta, Modeling of solid phase sedimentation during directional solidification in a side cooled cavity", *International Journal of Numerical Methods for Heat and Fluid Flow*, vol. 21, pp. 913-934 , 2011.

J76. G. Phanikumar, K. Chattopadhyay, and P. Dutta, Joining of dissimilar metals: issues and modelling techniques, *Science and Technology of Welding and Joining* , vol. 16, pp. 313-317, 2011 **(invited review paper).**

J77. N. D. Banker, M. Prasad, P. Dutta, and K. Srinivasan, Experimental results of an activated carbon-HFC 134a adsorption cooling system for thermal management of electronics, *Applied Thermal Engineering,* vol. 31, pp. 1607-1612, 2011.

J78. N. Gundiah, A. Narasimhan, and P. Dutta**,** Macromolecular transport through Porous Arterial Walls, *Journal of the Indian Institute of Science,* vol. 91, pp. 267-282, 2011.

J79. Abhijit A. Adoni, Amrit Ambirajan, Jasvanth V. S., and D. Kumar, and P. Dutta, "Theoretical and Experimental Studies on an Ammonia-based Loop Heat Pipe with a Flat Evaporator", *IEEE Transactions on Components and Packaging Technology*, vol. 33(2), pp. 478-487, 2010.

J80. Abhijit A. Adoni, Amrit Ambirajan, Jasvanth V. S., and D. Kumar, and P. Dutta, "Theoretical Studies of Hard-filling in Loop Heat Pipes", *AIAA Journal of Thermophysics and Heat Transfer,* vol. 24(1), pp. 173-183, 2010.

J81. S. K. Saha and P. Dutta, "Heat Transfer Correlations for PCM-based Heat Sinks with Plate Fins", *Applied Thermal Engineering*, vol. 30(16), pp. 2485-2491, 2010.

J82. N. D. Banker, M. Prasad, P. Dutta and K. Srinivasan, "Development and Transient Performance Results of a Single Stage Activated Carbon – HFC 134a Closed Cycle Adsorption Cooling System", *Applied Thermal Engineering* , vol. 30(10), pp. 1126-1132, 2010.

J83. P. Gerald Tennyson, P. Kumar, H. Lakshmi, G. Phanikumar and P. Dutta, "Experimental studies and phase field modeling of microstructure evolution during solidification with electromagnetic stirring", *Transaction of Nonferrous Metals Society of China,* vol. 20, pp. S774-S780, 2010.

J84. H. Lakshmi**,** M.C.Vinay Kumar, Raghunath, P. Kumar, V. Ramanarayanan, K. S. S. Murthy, and P. Dutta, " Induction Reheating of Aluminum Alloy A356 and Thixocasting of an Automobile Component", *Transaction of Nonferrous Metals Society of China,* vol. 20, pp. S961-S967, 2010.

J85. N. K. Kund and P. Dutta, "Numerical Simulation of Solidification of Liquid Aluminum Alloy Flowing on Cooling Slope", *Transaction of Nonferrous Metals Society of China,* vol. 20, pp. S898-S905, 2010.

J86. N. Pathak, A. Yadav, A. Kumar, and P. Dutta, "Effects of Mould Filling on Evolution of the Solid-Liquid Interface during Solidification", *Applied Thermal Engineering* Volume 29, Issues 17-18, 2009, Pages 3669-3678.

J87. Kumar A., and Dutta P., "Numerical studies on columnar-to-equiaxed transition in directional solidification of binary alloys", *Journal of Materials Science*, vol. 44(15), pp. 3952-3961, 2009.

J88. R. Pardeshi, A. K. Singh and P. Dutta, "Modeling of solidification process in a rotary electromagnetic stirrer", *Numerical Heat Transfer*, Part A, vol. 55:1, pp. 42-57, 2009.

J89. A. Sanyal, K. Srinivasan and P. Dutta, "Numerical Study of Heat Transfer from Pin-Fin Heat Sink using Steady and Pulsated Impinging Jets", *IEEE Transactions on Components and Packaging Technology*, Volume: 32 Issue: 4 Pages: 859-867, 2009.

J90. Adoni, A. Ambirajan, Jasvanth, V. S., Kumar. D., and Dutta, P., "Effects of Mass of Charge on Loop Heat Pipe Operational Characteristics", *AIAA Journal of Thermophysics and Heat Transfer,* vol. 23, No. 2, pp. 346-355, 2009.

J91. Banker ND, Prasad M, Dutta P, and Srinivasan K, "Activated carbon + HFC 134a based two stage thermal compression adsorption refrigeration using low grade thermal energy sources", *Appl. Therm. Eng.* Vol. 29, pp. 2257-2264, 2009.

J92. A. K. Singh, R. Pardeshi and P. Dutta, " Modeling of Convection and Macrosegregation through Appropriate Consideration of Multiphase/multiscale Phenomena during Alloy Solidification", *Industrial & Engineering Chemistry Research*, Volume: 48 Issue: 19 Pages: 8789-8804, 2009 **(invited review article).**

J93. K. Shyamprasad, S. Sundarraj and P. Dutta, "Modeling Growth of Hydrogen Bubbles in Aluminum Castings Using Level Set Method", *Scripta Materialia* , Volume: 61 Issue: 2, pp. 216-219, 2009.

J94. B. S. Akkimaradi, M. Prasad, P. Dutta, B. B. Saha, K. Srinivasan, "Adsorption of Nitrogen on Activated Carbon-Refit of Experimental Data and Derivation of Properties Required for Design of Equipment", Journal of Chemical & Engineering Data, vol. 54(8), pp. 2291-2295, 2009.

J95. A. Yadav, N. Pathak, A. Kumar, P. Dutta and S. Sarkar, "Effects of the filling process on the evolution of the mushy zone and macrosegregation in alloy casting", *Modelling and Simulation in Material Science and Enginering*, vol. 17 (3), 2009, Article No. 035006.

J96. N. Barman, P. Kumar and P. Dutta, " Studies on Transport Phenomena during Solidification of an Aluminum Alloy in Presence of Linear Electromagnetic Stirring" *Journal of Materials Processing Technology*", Volume:209 Issue: 18-19 Pages: 5912-5923, 2009.

J97. P Dutta and K. S. S. Murthy, "Semisolid Forming: Recent Advances", *Indian Foundry Journal*, vol. 55, No. 7, pp. 33-39, 2009.

J98. N. Barman and P. Dutta, "Effect of Process Parameters on Transport Phenomena during Solidification in the Presence of Electromagnetic Stirring", *Transactions of the Indian Institute of Metals*, vol. 62, pp. 469-474, 2009.

J99. Kumar A, Dutta P, "A Rayleigh number based dendrite fragmentation criterion for detachment of solid crystals during solidification", JOURNAL OF PHYSICS D-APPLIED PHYSICS Volume: 41 Issue: 15, 2008.

J100. R. Pardeshi, V. R. Voller, A. K. Singh and P. Dutta, "An explicit-implicit time stepping scheme for solidification models", *International Journal of Heat and Mass Transfer,* vol. 51, pp. 3399-3409, 2008.

J101. S. K. Saha, K. Srinivasan and P. Dutta, "Studies on Optimum Distribution of Fins in Heat Sinks Filled with Phase Change Material", *Journal of Heat Transfer, Trans. ASME*, Volume: 130 Issue: 3, 2008

J102. N. Barman, and P. Dutta, "Rheological Behavior of Semi-solid Slurry of A356 Alloy at High Shear and Cooling Rates", *Solid State Phenomena*, vols. 141-143, pp. 409-414, 2008.

J103. N. Barman, J. Mukherjee and P. Dutta, "Numerical Simulation of Induction Heating of Aluminum Alloy Billets", *Solid State Phenomena*, vols. 141-143, pp. 133-138, 2008.

J104. P. Kumar, H. Lakshmi and P. Dutta, "Solidification of A356 Alloy in a Linear Electromagnetic Stirrer", *Solid State Phenomena*, vols. 141-143, pp. 563-568, 2008.

J105. Banker ND, Dutta P, Prasad M and Srinivasan K, "Performance studies on mechanical + adsorption hybrid compression refrigeration cycles with HFC 134a", *Int. J. of Refrigeration*, Volume 31, Issue 8, Pages 1398-1406, 2008

J106. Vaibhav K. Arghode, Arvind Kumar, Suresh Sundarraj and Pradip Dutta, "Computational Modelling of GMAW Process for Joining Dissimilar Aluminum Alloys", *Numerical Heat Transfer* PART A-APPLICATIONS 53 (4): 432-455. 2008

J107. N. Barman and P. Dutta, "Studies on Macrosegregation and Double Diffusive Convection during Directional Solidification of a Binary Mixture", *Materials Science and Technology*, vol. 24, No. 10, pp. 1230-1237, 2008.

J108. A. Kumar and P. Dutta, "Modelling Precipitation of Solid Crystals during Freezing of Aqueous Ammonium Chloride Solution", *Journal of Institution of Engineers*, vol. 89, pp. 9-13, 2008.

J109. Saha BB, Chakraborty A , Koyama S, Srinivasan K, Ng KC, Kashiwagi , Dutta P, "Thermodynamic formalism of minimum heat source temperature for driving advanced adsorption cooling device", APPLIED PHYSICS LETTERS 91 (11), SEP 10, 2007.

J110. Bidyut B. Saha, Shigeru Koyama, Ibrahim I. El-Sharkawy, Khairul Habib, Kandadai Srinivasan, and Pradip Dutta, "Evaluation of Adsorption Parameters and Heats of Adsorption through Desorption Measurements", *J. Chem. Eng. Data*, **52** (6), 2419 -2424, 2007.

J111. J. Jain, A. Kumar, P. Dutta, "Role of plume Convection and Remelting on the Mushy Layer Structure during Directional Solidification", *Journal of Physics, D: Applied Physics*, vol. 40, pp. 1150-1160, 2007

J112. Adoni, A. Ambirajan, K. Srinivasan, P. Dutta, "Thermo-hydraulic Modeling of Capillary Pumped Loop and Loop Heat Pipe", *AIAA Journal of Thermophysics and Heat Transfer*, vol. 21, No. 2, pp. 410-421, 2007.

J113. J. Jain, A. Kumar, P. Dutta, "Numerical Studies on Channel Formation and Growth During Solidification: Effect of Process Parameters", *ASME Journal of Heat Transfer*, vol. 129, pp. 548-558, 2007.

J114. Kumar, P. Dutta, M. Walker and S. Sundarraj, "Remelting of Solid and its Effect on Macrosegregation during Solidification", *Numerical Heat Transfer,Part A*, vol. 51, pp. 59-83, 2007.

J115. R. Behera, K. Srinivasav and P. Dutta, "Numerical Study of Interrupted Impinging Jets for Cooling of Electronics", *IEEE Transactions Components and Packaging Technologies, vol. 30, No. 2, pp. 275-284, 2007.*

J116. B.B. Saha, I.I. El-Sharkawy, A.Chakraborty, S. Koyama, N.D.Banker, P.Dutta, M.Prasad and K.Srinivasan, "Evaluation of Minimum Desorption Temperatures of Thermal Compressors in Adsorption Refrigeration cycles", *International Journal of Refrigeration vol. 29, pp. 1175-1181, 2006.*

J117. Kumar and P. Dutta, "A Scaling Analysis of Alloy Solidification in Presence of Electromagnetic Stirring", *Journal of Physics D: Appl. Phys. vol. 39, pp. 3058-3066, 2006.*

J118. K.C. Nayak, S. K. Saha, K. Srinivasan and P. Dutta, "A Numerical Model for Heat Sinks with Phase Change Materials and Thermal Conductivity Enhancers", *International Journal of Heat and Mass Transfer* Volume 49, pp. 1833-1844, 2006.

J119. P. Kumar, K. Srinivasan and P. Dutta, "Visualization of Convective Loops due to Rayleigh-Benard Convection during Solidification", *Mechanics Research Communications* Vol. 32, No. 5 (2006) pp 593-600.

J120. D. Pal, J. Bhattacharya, S. Chakraborty, P. Dutta, "An Enthalpy-Based Model for Simulation of Dendritic Growth", *Numerical Heat Transfer PART B-FUNDAMENTALS 50 (1): 59-78, 2006*

J121. R. Basumatary, M. Prasad, K. Srinivasan and P. Dutta, "Thermal modeling of activated carbon based adsorptive natural gas storage system", CARBON, Vol 43/3 pp 541-549, 2005

J122. Kumar and P. Dutta, "Modeling of Transport Phenomena during Continuous Casting of non-dendritic Billets," *International Journal of Heat and Mass Transfer,* Volume 48, pp. 3674-3688, 2005.

J123. S. Chakraborty and P. Dutta, "Effects of Solutal Undercooling on Three Dimensional Double-Diffusive Convection and Macrosegregation during Solidification of a Binary Alloy", *Numerical Heat Transfer; Part A: Applications* 48 (3), pp. 261-281, 2005.

J124. Phanikumar, G., Manjini, S., Dutta, P., Mazumder, J., Chattopadhyay, K., "Characterization of Continuous CO_2 Laser Welded Fe-Cu Dissimilar Couple", *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science* 36 (8), pp. 2137-2147*), 2005.*

J125. J. Harish and P. Dutta, "Heat Transfer Modelling of Pusher-Type Reheat furnaces", *Ironmaking and Steelmaking* 32 (2), pp. 151-158, 2005.

J126. G. Phanikumar, P. Dutta and K. Chattopadhyay, "Continuous welding of Cu-Ni dissimilar couple using CO_2 laser", *Science and Technology of Welding and Joining* Vol. 10, No. 2, pp. 158-166(9) , 2005.

J127. S. Chakraborty and P. Dutta, "Effects of solid layer thickness and nominal composition on double-diffusive instabilities during solidification of a binary alloy cooled from the top", *International Journal of Heat and Mass Transfer* vol. 47 (1): 185-190 2004

J128. N. Chakraborty, S. Chakraborty, and P. Dutta, "Three Dimensional Modelling of Turbulent Weld Pool Convection in GTAW Processes", *Numerical Heat Transfer A*, vol. 45 (4) , 391-413, 2004.

J129. G.Phanikumar, P.Dutta and K.Chattopadhyay, " Computational modelling of laser welding of Cu-Ni dissimilar couple", *Metallurgical and Materials Transactions B* vol. 35 (2) , 339-350, 2004

J130. G. Phanikumar, P. Dutta, R. Galun and K. Chattopadhyay, "Microstructural evolution during remelting of laser clad hyper monotectic Al-Bi alloy ", *Materials Science and Engineering A* vol. 371 (1-2) , 91-102 , 2004

J131. S. P. Das, S. Chakraborty and P. Dutta, " Studies on Thermal Stratification Phenomenon in LH2 Storage Vessel", *Heat Transfer Engineering* vol. 25 (4), 54-66 , 2004

J132. J. Jaidi and P. Dutta, "Three dimensional Turbulent Weld Pool Convection in a Gas Metal Arc Welding Process", *Science and Technology of Welding and Joining,* vol. 9 (5) , 407-414, 2004

J133. S. Chakraborty and P. Dutta, "Three dimensional double-diffusive convection and macrosegregation during non-equilibrium solidification of binary mixtures", *International Journal of Heat and Mass Transfer***,** vol. 46, No. 12, pp. 2115-2134, 2003

J134. S. Chakraborty, N. Chakraborty, P. Kumar, and P. Dutta, "Studies On Turbulent Momentum, Heat and Species Transport during Binary Alloy Solidification in a Top-cooled Rectangular Cavity", *International Journal of Heat and Mass Transfer***,** vol. 46, pp. 1115-1137, 2003**.**

J135. N. Chakraborty, S. Chakraborty, and P. Dutta, "Modelling of Turbulent Transport in Arc Welding Pools", *International Journal of Numerical Methods for Heat and Fluid Flow* , vol. 13, Number 1: pp.7-30, 2003.

J136. S. Sarkar, P. Mohanraj, S. Chakraborty, G. Phanikumar, P. Dutta and K. Chattopadhyay, "Transport Phenomena in Laser Surface Alloying", *Journal of Materials Science***,** vol.. 38, No.1, pp. 155-164, 2003.

J137. S. Chakraborty and P. Dutta, "Analytical Solutions for Heat Transfer during Cyclic Melting and Freezing of a Phase Change Material used in Electronic and Electrical Packaging", *ASME Journal of Electronic Packaging* , Vol. 125, Issue 1, pp. 126-133, 2003

J138. P. Kumar, S. Chakraborty, K. Srinivasan and P. Dutta, "Studies on Transport Phenomena during Directional Solidification of a Non-eutectic Binary Solution Cooled from the Top", *Metallurgical and Materials Transactions* B 34 (6): 899-909 DEC 2003

J139. S. Bysakh, S. K. Mitra, G.Phanikumar, J. Majumder, P.Dutta, and K.Chattopadhyay, "Characterisation of Microstructures in laser Surface Alloyed Layers of Aluminium on Nickel", *Metallurgical and Materials Transactions* A 34A (11): 2621-2631 NOV 2003

J140. K. Suresh Kumar, G. Phanikumar, P. Dutta, and K. Chattopadhyay, " Microstructural Development of Dissimilar Weldments: Case of MIG Welding of Cu with Fe filler", *Journal of Materials Science***,** vol.. 37, pp. 2345-2349, 2002.

J141. S. Chakraborty and P. Dutta, "The Effect of Solutal Undercooling on Double-Diffusive Convection and Macro-segregation during Binary Alloy Solidification: A Numerical Investigation", *International Journal for Numerical Methods in Fluids*, vol. 38, pp. 895-917, 2002.

J142. S. Chakraborty and P. Dutta, "An Analytical Solution for Conduction-dominated Unidirectional Solidification of Binary Mixtures", *Applied Mathematical Modelling***,** vol. 26, pp. 545-561, 2002.

J143. S. Chakraborty and P. Dutta, " A Scaling Analysis of Momentum, Heat and Mass Transfer in Binary Alloy Solidification Problems", *Materials Science and Technology*, vol. 18, pp. 600 - 606, 2002.

J144. P. Kumar, S. Chakraborty, K. Srinivasan and P. Dutta, "Rayleigh-Benard Convection during Solidification of a Binary Alloy Cooled from the Top: Experiments and Numerical Simulation", *Metallurgical and Materials Transactions*, vol. 33B, pp. 605-612, 2002

J145. S. Chakraborty and P. Dutta, " Numerical Modelling of Heat and Mass Transfer in Laser Surface Alloying: Non-equilibrium Effects", *International Journal of Materials and Manufacturing Processes* , vol. 17, No. 4, pp. 455-468., 2002.

J146. B.S.Akkimaradi, Madhu Prasad, P.Dutta and K.Srinivasan. "Effect of Packing Density and Adsorption Parameters on the Throughput of a Thermal Compressor", *CARBON – an International Journal*, vol. 40, No. 15, pp. 2855-2859, 2002.

J147. S. Sarkar, P. Mohanraj, S. Chakraborty, and P. Dutta, "Three Dimensional Computational Modelling of Momentum, Heat and Mass Transfer in Laser Surface Alloying Process", *Numerical Heat Transfer, Part A*, vol. 42, pp. 307-326, 2002.

J148. S. Chakraborty, S. Sarkar and P. Dutta, "A Scaling Analysis of Momentum and Heat Transport in Gas Tungsten Arc Weld Pools", *Science and Technology of Welding and Joining*, vol. 7, No. 2, pp. 88-94, 2002.

J149. S. P. Das, S. Chakraborty and P. Dutta, " Numerical and Experimental Study of Thermal Stratification in a Side-Heated Cavity", *International Communications in Heat and Mass Transfer*, vol. 29, No. 3, pp. 345-354, 2002.

J150. P.Mohanraj, S.Sarkar, S.Chakraborty, G.Phanikumar, P.Dutta, and K.Chattopadhyay, "Modelling of Transport Phenomenon in Laser Laser Surface Alloying with Distrubuted Species Mass Source", *International Journal of Heat and Fluid Flow*, vol. 23, pp. 298-307, 2002.

J151. B.S.Akkimaradi, Madhu Prasad, P.Dutta and K.Srinivasan, "Adsorption of 1,1,1,2-Tetrafluoroethane on Activated Charcoal", *Journal of Chemical and Engineering Data*, vol. 46, no. 2, 2001, pp. 417 –422.

J152. K. Krishnaprakas, K. Badari Narayana and P. Dutta, "Combined Conduction and Radiation Heat Transfer in a Gray Anisotropically Scattering Planar Medium with Diffuse-Specular Boundaries", *International Communications in Heat and Mass Transfer* , Vol. 28, No. 1, pp. 77-86, 2001.

J153. S. Chakraborty, S. Sarkar and P. Dutta, " Effect of Constitutional Supercooling on the Numerical Solution of Species Concentration Distribution in Laser Surface Alloying", *Metallurgical and Materials Transactions* B, vol. 32B, pp. 969-972, 2001.

J154. S.Sarkar, S.Chakraborty and P.Dutta, "A Scaling Analysis of Momentum and Heat Transport in Laser Surface Melting", *Lasers in Engineering*, vol. 11, pp. 57-75, 2001.

J155. S.Chakraborty and P.Dutta, "A Generalized formulation for Evaluation of Latent Heat Functions in Enthalpy-based Macroscopic Models for Convection-Diffusion Phase Change Process", *Metallurgical and Materials Transaction* B vol. 32B, pp. 562-564, 2001.

J156. S.Chakraborty and P.Dutta, " Effects of Dendritic Arm Coarsening on Macroscopic Modelling of Solidification of Binary Alloys", *Materials Science and Technology*, vol. 17, pp. 1531-1538, 2001.

J157. G.Phanikumar, K.Chattopadhyay and P.Dutta, "Modelling of Transport Phenomenon in Laser Welding of Dissimilar Metals", *International Journal of Numerical Methods for Heat and Fluid Flow*, vol.. 11, No.2, pp. 156-171, 2001

J158. P. Mohanraj, S. Sarkar, S. Chakraborty and P. Dutta, "Three dimensional computational modelling of momentum, heat and mass transfer in laser surface alloying with distributed melting of alloying element", *International Journal of Numerical Methods for Heat and Fluid Flow,* vol. 11, No. 6, pp. 576-599, 2001.

J159. Krishnaprakas, C. K., Badari Narayana, K., and Dutta, P., "Use of GCG Methods for the Efficient Solution of Matrix Problems Arising from the FVM Formulation of Radiative Transfer", *Numerical Heat Transfer,* Part B, vol. 40, pp. 515-533, 2001.

J160. J. Jaidi and P. Dutta,, " Modelling of Transport Phenomena in Gas Metal Arc Welding Process", *Numerical Heat Transfer* , Part A, vol. 40, pp. 543-562, 2001.

J161. Chakraborty, S. and Dutta, P., "A Generalised Algorithm for Phase Change Problems in Materials Processing", *Current Science*, vol. 78, No. 7, 2000, pp. 887-891.

J162. Phanikumar, G., Chattopadhyay, K. and Dutta, P., "Supercomputer Applications in Materials Processing", *Current Science,* vol. 78, No. 7, 2000, pp. 847-849.

J163. Krishnaprakas, C. K., Badari Narayana, K.and Dutta, P., "Radiation in Boundary Layer Flow of an Absorbing, Emitting and Anisotropically Scattering Liquid", *International Journal of Numerical Methods for Heat and Fluid Flow,* vol. 10, No. 5, pp. 530-540, 2000.

J164. Krishnaprakas, C. K., Badari Narayana, K.and Dutta, P., "Heat Transfer Correlations for Multi-Layer Insulation Systems", *Cryogenics*, vol. 40, pp. 431-435, 2000.

J165. Krishnaprakas, C. K., Badari Narayana, K., and Dutta, P., "Interaction of Radiation with Natural Convection in an Absorbing, Emitting and Anisotropically Scattering Medium", *AIAA Journal of Thermophysics and Heat Transfer*, vol. 13, No. 3, 1999, pp. 387-390.

J166. Krishnaprakas, C. K., Badari Narayana, K., and Dutta, P., "Combined Convective and Radiative Heat Transfer in Turbulent Tube Flow", *AIAA Journal of Thermophysics and Heat Transfer*, vol. 13, No. 3, 1999, pp. 390-394.

J167. Chakraborty, S. and Dutta, P, ".A Scaling Analysis for Transport Phenomena during Alloy Solidification in a Rectangular Cavity", *Journal of Materials Processing and Manufacturing Science*, Vol. 7, No. 3, pp. 236-250, 1999.

J168. Y. Joshi, P. Dutta, D. Espinosa, and P.Schupp, "Non-axisymmetric Convection in Stationary Gas Tungsten Arc Weld Pools", *ASME Journal of Heat Transfer*, vol. 119, pp. 164-171, 1997.

J169. Omurtag, P. Dutta, and R. Chevray, "Attractors of Finite-Sized Particles: An Application to Enhanced Separation", *Physics of Fluids*, vol. 8, no. 12, pp. 3212-3214, 1996.

J170. K Mukherjee, V Prasad,and P.Dutta, " Liquid Crystal Visualization of the Effects of Crucible and Crystal Rotation on CZ Melt Flows", *Journal of Crystal Growth*, vol. 169, pp. 136-146, 1996

J171. P. Dutta. and R. Chevray, "Inertial Effects in Chaotic Mixing with Diffusion", *Journal of Fluid Mechanics*, vol. 285, 1995, pp. 1-16.

J172. P. Dutta, Y. Joshi and R. Janaswamy, " Thermal Modeling of Arc Welding Processes with Non-axisymmetric Boundary Conditions", *Numerical Heat Transfer*, Part A, vol. 27, 1995, pp. 499 – 518.

J173. P. Dutta. and R. Chevray, "Enhancement of Chaotic Mixing by Diffusion: Experimental and Numerical Studies", *Experimental Thermal and Fluid Science*, vol. 11, 1995, pp. 1 – 12.

J174. P. Dutta, Y. Joshi and C. Franche, " Determination of Gas Tungsten Arc Welding Efficiencies", *Experimental Thermal and Fluid Science* , vol. 9, No. 1, 1994, pp. 80 – 89.

J175. P. Dutta and K.N Seetharamu, "Free Convection in a Saturated Porous Medium Adjacent to a Vertical Impermeable Wall subjected to a Non-uniform Heat Flux", *Heat and Mass Transfer*, vol. 28, No.1, 1993, pp. 27-32.

J176. P. Dutta. and R. Chevray, "Effect of Diffusion on Chaotic Advection in a Stokes Flow", *Physics of Fluids* A, 3, No. 5, 1991, pp. 1440

J177. K.N Seetharamu and P. Dutta, "Free Convection in a Saturated Porous Medium adjacent to a Non-isothermal Vertical Impermeable Wall", *Heat and Mass Transfer*, Vol. 25, No.1, 1990, pp. 9-15.

J178. K.N Seetharamu and P. Dutta, "Mixed Convection about a Non-isothermal Vertical Surface in Porous Medium", *International Journal for Numerical Methods in Fluids*, 8, 1988, pp. 723-735.

J179. P. Dutta and K.N Seetharamu, "Effect of Variable Heat Flux on Free Convection in a Saturated Porous Medium", *Indian Journal of Technology*, 25, 1987, pp. 567-571.

Appendix B
Thesis Supervised

Total: 30 PhDs (23 completed + 7 in progress); 55 Masters (18 MSc. Engg + 37 ME Projects)

Ph.D Thesis

PhD Awarded/submitted

Sl. No.	Name	Year graduated	Thesis Title	Present position
1	Sourav Mitra	2016	Development and Investigation of Two-Stage Silica gel + Water Adsorption Cooling cum Desalination System	Joined post doc at Kyushu University, Japan, in April 2016
2	Prosenjit Das (ERP)	2016	Study of Rheo-pressure die casting of Al alloys using Cooling slope technique	CSIR – Central Mechanical Research Institute, Durgapur
3	Swapnil Dalal (jointly with Prof. G. Tomar)	2016	Numerical Simulation of Two Phase Polymeric Flows	--
4	Diptimayee Samantaray	2015	Effect of Semi-Solid Processing on microstructural Evolution and Mechanical Behavior of Austenitic Stainless Steel	IGCAR, Kalpakkam
5	Kali Charan Nayak	2014	Studies on labyrinth seal leakage and windage heating	Rolls-Royce Aerospace Engineering
6	Anirban Bhattacharya	2015	Development of mechanistic model for prediction of solidification shrinkage	Assistant Professor, IIT Bhubaneshwar (after post doc at U of Manchester)
7	K. Shyamprasad	2012	Modeling growth and motion of hydrogen bubbles and equiaxed dendrites during solidification of aluminum alloys	Assistant Profesor, IIT Bombay (after post doc at U of Manchester)
8	Shailesh Kumar Singh (co-guided with Prof. K. Chattopadhyay)	2014	Studies on friction welding of thixocast aluminium alloys	Boeing India, Bangalore
9	Nirmal Kumar Kund	2012	Studies on solidification of aluminum alloy flowing on a cooling slope	Associate Professor, KIIT University, Bhubaneshwar
10	Prodyut Chakraborty	2011	Single-phase and Multi-phase Convection during Solidification of Non-eutectic Binary Solutions	Assistant Professor, IIT Jodhpur
11	Ravindra Pardeshi	2010	Multi-scale Segregation Model for Alloy Solidification Process	Aditya Birla Science and Technology Co. Ltd.
12	Sandip Kumar Saha	2010	Cooling of Electronics with Phase Change Materials under Constant and Cyclic Heat Loads	Assistant Professor, IIT Bombay
13	Madhusudhana Rao Gavara	2010	Role of Mixed Convection in Cooling of Electronics	Assistant Professor, IIT Guwahati
14	Arvind Kumar	2009	Role of solid phase movement and re-melting on macrosegregation and microstructure in	Assistant Professor, IIT Kanpur

			solidification processing	
15	Nilkanta Barman	2009	Studies on Transport Phenomena during Solidification in Presence of Linear Electromagnetic Stirring	Assistant Professor, Jadavpur University
16	Abhijit Adoni	2008	Studies on Capillary Pumped Loop and Loop Heat Pipe Systems	ISRO, Bangalore
17	Pramod Kumar	2008	Experimental Investigation of Rheocasting using Linear Electromagnetic Stirring	Assistant Professor, IISc Bangalore
18	Nitin Banker (co-guided with Prof. K. Srinivasan)	2007	Activated Carbon Based Adsorption Refrigeration System	Associate Prof., Shiv Nadar University
19	Jeevan Jaidi	2003	Modelling Of Transport Phenomenon And Evaluation Of Weld Metal Microstructures In Gas Metal Arc Welding	Associate Professor, BITS Pilani Hyderabad
20	Suman Chakraborty	2002	Studies on Momentum, Heat and Mass Transfer in Binary Alloy Solidification Processes	Professor, IIT Kharagpur
21	G. Phanikumar (co-guided with Prof. K. Chattopadhyay)	2002	Experimental and Computational Studies on Laser Processing of Dissimilar Metals	Professor, IIT Madras
22	C. K. Krishnaprakas	2001	Interaction of Radiation Heat Transfer with Conduction and Convection	--------
23	Jose Prakash (co-guided with Prof. K. Srinivasan)	2000	Activated carbon-nitrogen adsorption cryocoolers: characterisation of sub-systems and experiments on a laboratory scale model	Professor, TKM College of Engineering. Kerala

PhD thesis In progress

24	A. R. Anand (ERP)	(in progress)	Development of miniaturized loop heat pipe system
25	Venkat Raghavendra (co-guide:Dr. Pramod Kumar) ERP	(in progress)	Thermal management with loop heat pipe coupled with phase change materials
26	Avinash Dash	(in progress)	Design and simulation of scroll expander for small scale Organic Rankine Cycle based CSP plants
27	N. Aswin	(in progress)	Adsorption based thermal storage
28	Sandip Sarkar	(In progress)	Processing of Steels with Electromagnetic Stirring
29	Sagar, K.	MSc Engg. 2014, continuing for PhD	Modeling and simulation of CO2 based solar receivers
30	Sayuj (co-guide: Prof. K. P. J. Reddy)	(in progress)	Development of solar air receivers

Masters Thesis

A. MSc. Engineering (renamed as M.Tech – Research)

Sl. No.	Name (year graduated)	Thesis Title
1	Sarthak Sharma (in progress)	Experimental study of conventional and unconventional turbomachinery expanders in Organic Rankine Cycle
2	Sagar K. (2014)	Modeling and simulation of CO2 based solar receivers
3	Amogh Sahaje (2014)	Numerical Heat Transfer Analysis of Volumetric Cavity Solar Receivers
4	Anoop Raghunath Kini (2013)	Studies on thixo-extrusion of aluminium alloys
5	Akila Harith (2012)	Thermodynamic analysis and simulation of a solar thermal power system
6	Apoorva (2012)	Microstructure evolution in semisolid processing
7	Poorva Golatkar (2011)	Modelling of Transport Phenomena in Arteries
8	Nitin Pathak (2009)	Effect of Mould Filling on Evolution of Mushy Zone and Macrosegregation during Solidification
9	Anuradha Sanyal (2006) (co-guided with Prof. K. Srinivasan)	Numerical studies on jet impingement cooling of pin-fin heat sinks
10	Vinod Kumar (2006)	Modelling of multiphase flow using a level set approach
11	Jishnu Bhattacharya (2005)	An enthalpy-based microscale model for alloy solidification
12	Sandip Kumar Saha (2005) (co-guided with Prof. K. Srinivasan)	Thermal management of electronics using phase change materials
13	Arvind Kumar (2003)	Modelling of Solidification in presence of Electro-magnetic Stirring
14	R. C. Behera (2003)	Numerical studies on pulsated impinging jets
15	Arnab Guha (2003)	Computational modeling of species transport during a laser surface alloying process
16	Rajib Chakraborty (2001)	Numerical Study of Marangoni Convection in Two Dissimilar Liquids, Separated Horizontally
17	Pramod Kumar (2001) (co-guided with Prof. K. Srinivasan)	Study of double diffusive convection during solidification of a binary alloy cooled from the top
18	P. Mohanraj (2000)	Transport Phenomena in Laser Surface Alloying
19	J. Harish (2000)	Computational Modelling of Heat Transfer in Reheat Furnaces

B. Masters in Engineering (ME) Projects

Sl. No.	Name (year graduated)	Project Title
1	Anil Verma (in progress)	Modelling, design and fabrication of flat plate solar collector with integral fin extruded aluminium tubes
2	Aakash Tyagi (2016)	CFD Modelling and Thermal Analysis of Integral Fin Extruded Aluminium Flat Plate Solar Collector (FPC)
3	Ajinkya Meshram (2015)	CFD Modelling of Printed Circuit Heat Exchanger (PCHE) for single phase Regenerator
4	Chandan Singh (2014)	Design and Analysis of Heat Pipe based Solar Receiver for Pressurized Fluids
5	Ankush Kumar Jaiswal (2014)	Analysis of Annual Performance of a sCO2 Brayton Power Plant
6	Pranay P. Raul (2013)	Performance analysis of heat pipe evaporator integrated with PCM
7	Abhishek (2013; (co-guide Dr. S. Basu))	Simulation of air humidifier for fuel cells
8	Pardeep Garg (2012)	Thermodynamic analysis of solar based organic Rankine cycles and closed cycle CO_2 Brayton Cycle
9	C. Sarma (2012) (co-guide Dr. S. Basu)	Study of evaporation characteristics in loop heat pipes
10	Pradeep Patel (2011)	Development of a Solar Powered Stirling engine / Stirling-Dish system
11	D. Vikas (2011)	Concentration and temperature measurements during solidification of binary alloy using laser Interferometry
12	Shreyas Gulati (2010)	CFD studies on cooling of data centers
13	Atul Verma (2009)	Study of Solidification in Squeeze Casting Process
14	Subhabrata Bannerjee (2009)	Study if Die Filling in Thixocasting Process
15	Anil Yadav (2008)	Simulation of Die Filling during Squeeze Casting Process
16	Anirban Bhattacharrya (2007)	Micro-scale modeling of binary alloy solidification
17	B. B. Murthy (2006)	Underhood and incabin thermal analysis using CFD
18	Jayesh Jain (2005)	Studies on freckles formation during solidification of a binary mixture cooled from below
19	Nirmal Kumar Kund (2005)	Experimental studies on liquid jet impingement cooling
20	Vaibhav Arghode (2004)	Computational modelling of GMAW process for joining dissimilar aluminium alloys
21	Nilkanta Barman (2004)	Measurement of liquid concentration during solidification of a binary mixture

22	Debashish Pal (2003)	A Fixed Grid Enthalpy Based Model For Dendritic Solidification
23	Kali Charan Nayak (2003)	Cooling of electronics using phase change material (PCM) and thermal conductivity enhancers (TCE)
24	S. Srikanth (2002)	Solution of Diffusion Problems using FVM with Unstructured Grids
25	Vinay Gupta (2002)	Modelling of Free Boundaries using Volume of Fluid (VOF) Method
26	Nilanjan Chakraborty (2001)	Development of a K-epsilon Turbulence model for Weld-pool Convection
27	J. Gopinath (MF)* (2001)	Study of laser surface treatment of steels
28	K. Suresh Kumar (MF) * (2001)	MIG Welding Of Cu with Mild Steel Filler Material
29	S. Biju (MF) * (2001)	Friction Stir Welding
30	Tarun Gupta (2000)	Modelling of Transport Phenomena in MIG Welding Process
31	B. S. Akkimaradi (2000)	Adsorption studies of R-134a on activated charcoal
32	Supriya Sarkar (2000)	Computational modeling of heat and mass transfer in laser surface alloying
33	Suman Chakraborty (1999)	Macroscopic modelling of binary alloy solidification: a generalised approach
34	Subhankar Ganguly (1999)	Computational modelling of particle melting and distribution in laser surface alloying
35	Shyama Prasad Das (1999)	Thermal Stratification in a side-heated cavity: experimental and numerical study
36	K. P. Deshkulkarni (1998)	Modelling of flow in an irregular geometry using a body-fitted coordinate system
37	Aravindakshan Pillai (1998)	Numerical simulation of thermal stratification in LH2 storage vessel
38	Ravindra Pardeshi (1998)	Computational modelling of laser welding of dissimilar metals