

BIODATA

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Educational Qualification

B.Tech (Mech. Engg) IIT Kharagpur, 1979-1984 (all India Rank = 178)
M.Tech (Mech Engg) IIT Kharagpur, 1985 July-1986 Dec
Ph.D (Mech. Engg) IIT Kharagpur, 1989 Nov
Post. Doc (in Computational Fluid Dynamics) Friedrich Alexander University,
Erlangen-Nurnberg, Germany, as an Alexander von Humboldt Fellow, 1993-94

Field of Interest

Computational Fluid Mechanics and Heat Transfer, Thermodynamics, Droplet Evaporation and Combustion, Turbulent fluid flow and Heat Transfer and Turbulence Modeling, Power plant, Software Development, Neural Network, Automobiles, CFD application to industrial problems, Two phase flow analysis, discrete phase modeling and Free surface flow analysis.

Job Experience

1984 – 85 Executive, Maruti Udg Ltd, Gurgaon, Haryana, 122 015
1989 – 93 Scientist - “C “, CMERI, Durgapur, 713 209
1995 – 98(Apr) Research Manager, R & D Division, Tata Steel, Jamshedpur
1998(Apr) – 2003 , Associate Prof., Dept of Mech Engg, IIT Kharagpur, 721 302
2003- till date, Professor, Department of Mechanical Engineering, I I T Kharagpur, India

Ph.D Guidance:

24 students have so far been awarded their degree, 3 have submitted in last 2 months

8 students are now doing their research work under me and 2 are about to submit

Departmental Activities: I have created the CFD lab in the year 2004, which has grown today very much. PG coordinator from 2009 till 2013. I was the Head of the Dept of Mechanical Engineering at IIT Kharagpur from 2016-2019.

Research work outside India

- 1993-94 (1 yr two months) Algebraic flux and stress models with higher order closure to the application of natural convection near vertical heated flat plate, LSTM , Erlangen, Germany as an AvH Fellow
- 2000 May to July (3 months) Prediction of vortex in a ladle under gravity drainage and incorporation of flow obstacles to delay the appearance of vortex. TU Hamburg, Germany, As an AvH Fellow under re-invitation scheme
- 2002 May to July (3 months) Drop impact on a solid dry or wet surface and a prediction of its deformation and a comparison with experiment, TU Darmstadt, Germany, As an AvH Fellow under re-invitation scheme
- 2004 May to July (3 months) Solidification of binary alloys and an experimental comparison of the movement of the solidification front, TU Aachen, Germany, As an AvH Fellow under re-invitation scheme
- 2018 May to July (3 months) As an AvH fellow to study direct numerical simulation in the Institute of Zero Gravity at TU Bremen.

Publications and projects

(Please see at the attached list)

International Visibility: I am in the top 2% scientists in the world (in Mech Engg and transportation) according to the Stanford University database and research.

Awards

I have been awarded National Rural Talent Scholarship from class VII and National Talent Scholarship from Class XI onwards till the end of my B.Tech curriculum. I am also awarded the Alexander von Humboldt research fellowship in the year 1993 to carry out my post doctoral research work in the area of turbulent and laminar natural convection in enclosures and external flow for testing algebraic flux and stress models with higher order turbulence modeling.

Personal Information

Sex : Male
Date of Birth : 1st June 1961
Marital Status : Married, one Son
Nationality : Indian

Consultancy and Sponsored Projects Executed

(Now in IIT)

Consultancy projects carried out during: (1998 July – till date)

1. Effect of radial flow barrier on flow induced shear stress on the wall of a blast furnace hearth, Sponsor : Tata Steel, benefit: Erosion mechanism in a blast furnace understood well and international publications came out, IIT/SRIC/ME/98-99/81-1 , 2.5 lakh
2. Mathematical modeling of surface waves created in a slab caster mold due to submerged entry nozzle, Sponsor: Tata Steel, Benefit: surface wave could be lowered by decreasing argon flow and blister formation suppressed in casting, Publication made, IIT/SRIC/ME/98-99/81-2,, 2.5 lakh
3. Mathematical modeling of aircore in a draining vessel, Sponsor: Tata Steel, air entrapment could be understood well and publications made. IIT/SRIC/ME/98-99/81-3, 2.5 lakh
4. Enhancement of air flow rate into the blast furnace, Sponsor: Usha Martin Industries Ltd, Jamshedpur, IIT/SRIC/ME/99-00/104 Rs. 1.2 lakh
5. Computation of wall shear stress on the wall of “G”Blast furnace hearth, Sponsor – Tata Steel, IIT/SRIC/ME/2000-01/145 1.0 lakh
6. Learning CFD through Phoenics, Sponsor- CDAC Pune, IIT/SRIC/ ME /2001-02/33, 1.2 lakh
7. Application of Neural network and demonstration to various processes, Sponsor: Tata Steel, W. O no: 2300001787/114, dated: 26.10.2002, IIT/SRIC/ME/2002/81 1.2 lakh
8. Finite volume method for solving fluid flow and heat transfer, Sponsor, Tata Steel, W.O No: 3000006602, dated: 17.10.2002, IIT/SRIC/ME/81 2.0 lakh
9. Optimization of tap hole angle to minimize wall shear stress, Sponsor: Tata Steel, IIT/SRIC/ME/2002-03/93, OTHA 4.0 lakh
10. Modeling of combustion in raceway zone of a blast furnace, Sponsor, N M L , Jamshedpur. ME/2003-04/133 16 lakh
11. Use of different turbulence models to predict mixing in a tundish and compute the optimum parameters that govern highest possible mixing in a tundish, Sponsor- CDAC Pune, IIT/SRIC/ME/2001/45 , 1.3 lakh

12. Mathematical Modeling of argon flow in to the SEN fitted to a slab caster tundish to minimize blister formation in caster, Sponsor: Tata Steel IIT/SRIC/ME/2003-04/56, AFSN 2.75 lakh
13. Mathematical modeling of air flow in the tuyere and optimization of tuyere parameters for best possible mixing of coal, Sponsor: Tata Steel, IIT/SRIC/ME/2003-04/112, MMTP 2.75 lakh
14. Flow modification to minimize erosion (through CFD) in the economizer and the air heater tubes in CFBC power plants. Sponsor: BCCL, IIT/SRIC/ME/2003-04/113, FMCD 1.75 lakh
15. Use of Flow Barriers to Eliminate Vortex in the Flow Field Generated in a Continuous Galvanizing Bath, Sponsor: Tata Steel, IIT/SRIC/ME/2004-05/14 2.75lakh
16. Mathematical modeling of flow and its visualization in a hearth, Sponsor: Tata Steel. IIT/SRIC/ME/2004-05/91 1.5 lakh
17. Mathematical modeling of co-axial lance and optimization to obtain best possible mixing at the tuyere exit. Sponsor: Tata Steel, IIT/SRIC/ME/2005-06/107 4.0 lakh
18. Mathematical modeling of sea chest and determination of optimum baffle height to create minimum disturbances in the suction chamber of the sea chest. Sponsor: Directorate of Naval Design, Govt. of India. IIT/SRIC/ME/2005-06/02, VSCD 6.01 lakh
19. Mathematical modeling of air injection at the bottom of a ladle and the flow field in the ladle, Sponsor: Tata Steel, IIT/SRIC/ME/2005-06/122 4.5 lakh
20. Mathematical modeling of flow field in a tundish to optimize the turbo-stop height and the shroud immersion depth for minimum wall erosion, Sponsor: Tata Steel, IIT/SRIC/ME/2005-06/139 5.0 lakh
21. CFD simulation of external flow over a ship and determination of plume to avoid reentry in to the GT inlet, Sponsor: Mazagon Dock Ltd. IIT/SRIC/ME/2006-07/24, ASSP 27.52 Lkaha
22. CFD analysis of Sea chest design, Garden Reach ship Builders Ltd. IIT/SRIC/ME/2006-07/90, CFDA, 8.2 lakh
23. Mathematical modeling of surface wave and meniscus fluctuation in a slab caster mold, Sponsor: Tata Steel, IIT/SRIC/ME/2006-07/125, SDSW, 5.8 lakh
24. Flow simulation in a 3 strand billet caster tundish, Sponsor: IFGL Refractories, IIT/SRIC/ME/2007-08/32, FSIT 1.2 lakh
25. Estimation of tundish geometry for better flow mixing and control, Sponsor: IFGL Refractories, IIT/SRIC/ME/2007-2008/98/JSPL 1.12 lakh
26. Estimation of nozzle parameters of a SEN for lower surface fluctuation on the mold, Sponsor: IFGL Refractories, IIT/SRIC/ME/2007-2008/ISDV 1.12 lakh

27. Design parameters for beam blank SEN of JSPL caster, Sponsor: IFGL Refractories, IIT/SRIC/ME/2008-2009/167/PBBS, 1.5 lakh
28. Design of a tundish for lower wall stress of Bhilai Plant, Sponsor: IFGL Refractories, IIT/SRIC/ME/2008-2009/168/DTWE, 0.618lakh
29. Design parameters for the SEN of Hissar Steel Design parameters for the SEN of Hissar Steel, Sponsor: IFGL Refractories, IIT/SRIC/ME/2008-09/15/DPSH 1.0 lakh
30. RTD study for Tisco-LD2 tundish, Sponsor: IFGL Refractories Ltd, IIT/SRIC/ME/2008-09/16/RTDS 0.6 lakh
31. Determination of vortex height in a tundish for a grade change operation, Sponsor: IFGL Refractories Ltd, IIT/SRIC/ME/2008-09/30/VHGC 0.6 lakh
32. Estimation of Air conditioning system at RBI Bhubaneswar, Sponsor : RBI Bhubaneswar, IIT/SRIC/ME/-2008-09 1.2 lakh
33. On site evaluation and performance test of air conditioning system at RBI Bhubaneswar, Sponsor: RBI Bhubaneswar, IIT/SRIC/ME/2009-10/53/TSRB
34. Flow stress evaluation on pipe wall in slide gate operation, Sponsor: IFGL Refractories ltd, IIT/SRIC/ME/2009-10/91, FSEP 1.65 lakh
35. New APB design for JSPL combi catser, Sponsor, IFGL Refractories Ltd, IIT/SRIC/ME/08-09/85/NAJC 0.6 lakh
36. Pulling force estimation for ribbed bars, Sponsor: Tata Steel, IIT/SRIC/2009-10/92, PERB 5.5 lakh
37. Residence time study in Tundish, Sponsor, IFGL Refractories ltd, IIT/SRIC/ME/09-10/128/RTST 1.0 lakh
38. Plume trajectory Analysis, Sponsor: Garden Reach ship builders and engineers, IIT/SRIC/ME/2009-10/126/PLTA, 19.85 lakh
39. Flow equalization in PA cold duct, Sponsor: Jindal Steel and power Ltd, IIT/SRIC/ME/2010-11/65/FEPD, 1.95 lakh
40. Tundish Design of BRG Steel (P) Ltd, Sponsor: BRG Steel, IIT/SRIC/ME/2011-12/02/TDBS , 2.2 lakh
41. SEN design of JSL Hissar Plant, Sponsor: IFGL Refractories Ltd, IIT/SRIC/ME/2011-12/41/SDJH, 2.2 lakh
42. RTD and Temp study of JSPL Jajpur tundish, Sponsor: IFGL Refractories Ltd, IIT/SRIC/ME/RJTT/2012-13/91 1.3lakh
43. RTD Analysis of Mexican Tundish, Sponsor: IFGL Refractories Ltd, IIT/SRIC/ME/RAMT/2012-13/87, 1.2lakh

44. Simulation studies of P15A with modified hanger top, Sponsor: Mazagon Dock Ltd, IIT/SRIC/ME/SPHT/2012-13/88, 28.09 lakh
45. Free surface fluctuation in the mold with different types of SEN, Sponsor: IFGL refractories Ltd, IIT/SRIC/ME/FSFM/2013-14/33, 2.36lakh
46. Free surface fluctuation in thin slab casting, Sponsor: IFGL refractories Ltd, IIT/SRIC/ME/FTSC/2013-14/55, 2.36lkh
47. Mathematical model for argon injection into a water mold, Sponsor: IFGL Refractories Ltd, IIT/SRIC/ME/AIWM/2013-14/81, 2.36lakh
48. Free surface fluctuation and estimation of dead volume (FFDU), Sponsor: IFGL Refractories Ltd, IIT/SRIC/ME/FFDU/2014-2015/48, 3.65 lakh
49. Integration of PDMS onboard INS Vikramaditya (IPIV), Sponsor: Ministry of Defence, WESEE, Navy, IIT/SRIC/ME/IPIV/2014-2015/111, 59.15lakh
50. Simulation of open steam aging process (SOSA), Sponsor: Tata Steel, IIT/SRIC/ME/SOSA/2016-17/40, 3.28lakh
51. Design simulation study with plated mast on hanger top of P15 –A (DSST), Sponsor: Mazagon Dock Ltd, IIT/SRIC/ME/DSST/2017-18/13, 56.06lakh
52. Sizing calculations of louvers for prilling tower, (SLPT), Sponsor: Simplex infrastructure limited, IIT/SRIC/ME/SLPT/2017-18/149, 0 .613lakh

Sponsored Projects carried out in IIT (1998 - till date)

1. Modeling of air core diameter and prediction of spray characteristics in a coaxial injector, Sponsor: Indian Space Research Organization, Thiruvananthapuram , 3 lakh
2. Flow and heat transfer Modeling for the expansion of a high temperature gas in the thrust chamber of a cryogenic rocket engine (STC/CRE) IIT/SRIC/CRE/2002-03/69, 6 lakh
3. Mathematical Modeling of Liquid poison injection in to the calandria, Sponsor: BARC, IIT/SRIC/MDC/2004-05/12, 6.9 lakh
4. Advance control failure prognosis and diagnosis of industrial processes for steel making, Phase-I using data fusion, Sponsor: DIT, IIT/SRIC/EE/09-10/SDF, 58.92 lakh
5. Algae mediated bio-sequestration and storage of carbon dioxide from coal based flue gas and assessment of Algal biomass for animal feed application, Sponsor, WB-DST, IIT/SRIC/BT/ABA/2011-12/102 27.38lakh,
6. An integrated green process for biological carbon sequestration coupled with domestic sewage remediation by algae in closed photo bioreactor and subsequent utilization of biomass as biofertilizer (IGG), Sponsor: DST, Govt of India, IIT/SRIC/BT/IGG/2013-14/59, 27.04lakh

7. Microgravity Slosh Analysis, Sponsor: ISRO Trivandrum, IIT/SRIC/ME/MTS/2015-16/75, 6.96lakh
8. Experimental study on effects of steam dilution on high pressure swirl combustion (EEH), Sponsor: SERB, Dept of science and Tech, IIT/SRIC/ME/EEH-2019-20/311, 46.17lakh
9. PROCESS INTENSIFICATION AND INTEGRATION FOR EFFICIENT CO₂ DELIVERY TO ENHANCE ALGAL BIOMASS PRODUCTION IN A BIOREFINERY MODEL (ACRONYM: IN SCO₂PE) (**IIB SKI**) 75.43lakh

(Executed in Tata Steel) 1995-1998

1. Simulation of flow field in a blast furnace trough and enhancement of its life. (benefit: the trough life increased by 2 weeks causing a saving of Rs.1crore per year)
2. Modeling of Mixing phenomena in a RH Degasser and prediction of mixing time as a function of various input parameters. (benefit: other scientists came to know how such modeling is done and the model was used in the plant off line) .
3. Application of Artificial Intelligence through ANN models for the prediction of hot metal temperature, Prediction of RDI and Prediction of +10mm size in sintering process. (benefit: model used in the plant)
4. Modeling of flow and heat transfer in a slab caster tundish.
5. Modeling of Ladle Thermal Cycle at LD 2 and development of a general purpose program for use in Tata Steel at LD2. (benefit: Cycle time changed to save heat energy, monetary benefit difficult to quantify)

(Executed in C M E R I) 1989-1993

1. Design of a nodule picking nozzle head, which is to be fitted to a under water vehicle for picking up nodules from the sea bed, Sponsor: Dept of Ocean Development
2. Cooling of an electronic box for fighter aircraft, Sponsor : ASIEO, Bangalore
3. Flow over a car body to estimate Drag and pressure forces. (in house program)

Dr Sukanta K Dash

List of Publications in International Journals

1. Som S. K., Dash S.K, Mitra, A.K and Sengupta S. P., (1989) Transport coefficients of an evaporating liquid drop in creeping flow, *Warme und Stoffubertragung*, Vol. 24, pp. 164-171
2. Dash S. K., Sengupta S. P. and Som S. K., (1991) Transport processes and associated irreversibilities in droplet evaporation, *AIAA, Journal of Thermophysics and Heat Transfer*, Vol. 5, No. 3, pp. 366-373
3. Dash S. K. and Som S.K., (1991) Ignition and combustion of liquid fuel droplet in a convective medium, *ASME, Journal of Energy Resources Technology*, Vol. 113, No.3, pp. 165-170
4. Dash S. K. and Som S. K., (1991) Transport processes and associated irreversibilities in droplet combustion in a convective medium, *International Journal of Energy Research*, Vol. 15, pp. 603-619
5. Sengupta S. P., Mitra A.K., Dash S.K. and Som S. K., (1992) Influence of downstream distance on the drop-size characteristics of an evaporative liquid spray in a convective gaseous medium, *ASME, Journal of Energy Resources Technology*, Vol. 114, No.1, pp. 70-74
6. Som S. K. and Dash S. K., (1993) Thermodynamics of spray evaporation, *Journal of Physics D: Applied Physics*, Vol. 26, pp. 574-584
7. Dash S. K. and Chattopadhyay H., (1993) A comparison between boundary fitted coordinate system and finite element method in solving a heat conduction problem, *International Journal of Numerical Methods for Heat and Fluid Flow*, Vol. 3, No.1, pp. 79-84
8. Dash S. K. and Chattopadhyay H., (1994) A correlation for asymptotic Nusselt number in transient heat transfer from a single sphere, *Journal of Energy, Heat and Mass Transfer*, Vol. 17, pp.1-6
9. Dash S. K. and Chattopadhyay H., (1994) Numerical visualization of convective heat transfer from a sphere - with and without radial mass efflux, *International Journal of Numerical Methods for Heat and Fluid Flow*, Vol. 5, pp. 705-716
10. Dash S. K., (1996) Heatline visualization in turbulent flow, *Int. J. Numerical Methods for Heat and Fluid Flow*, Vol. 6, No. 4, pp.37-46
11. Vats A. K. and Dash S. K., (2000), Flow induced stress distribution on the wall of blast furnace hearth, *Ironmaking and Steelmaking Int. J. of Tech. Advances*, Vol 27, No.2, pp.123-128
12. Dash S. K., Ajmani, S. K., Ashok Kumar and Sandhu H. S., (2001) Optimum tap hole length and flow induced stresses, *Ironmaking and Steelmaking Int. J. of Tech. Advances*, Vol. 28, No.2, pp.110 –116

13. Jha P.K., Dash S. K., and Sanjay Kumar, (2001) Fluid flow and mixing in a six strand billet caster tundish: A parametric study, *ISIJ International*, Vol. 41, No.12, pp.1437-1446
14. Dash S K, Halder M R , Peric M and Som S K, (2001) Formation of air core in nozzles with tangential entry, *ASME J. Fluids Engg*, Vol.123, pp.829-835
15. Halder M R, Dash S K and Som S K, (2002) Initiation of air core in a simplex nozzle and the effects of operating and geometrical parameters on its shape and size, *Expt. Thermal Fluid Science*, Vol.26, pp.871-878
16. Jha P. K. and Dash S. K., (2002) Global optimization of fluid flow and mixing in a six strand billet caster tundish, *ISIJ International*, Vol.42, No.6, pp. 670-672
17. Jha P. K. and Dash S. K., (2002) Effect of outlet positions and various turbulence models on mixing in a single and multi strand tundish, *Int. J. Num. Method For Heat and Fluid Flow*, Vol.12, No.5, pp. 560-584
18. Halder M R, Dash S K and Som S K, (2002) Influence of nozzle flow and nozzle geometry on the shape and size of an air core in a hollow cone swirl nozzle, *J. Mech Engg. Sciences, IMechE*, Vol.217 Part-C, pp.207-217
19. Jha P K, Rajeev Ranjan, Mondal S S and Dash S K, (2003) Mixing in a tundish and a choice of turbulence model for its prediction, *Int. J. Numerical Methods for Heat and Fluid Flow*, Vol. 13, No.8, pp.964-996
20. Halder M R, Dash S K and Som S K, (2004) A numerical and experimental investigation on the coefficients of discharge and the spray cone angle of a solid cone swirl nozzle, *Expt. Thermal Fluid Science*, Vol. 28, pp.297-305
21. Jha P K and Dash S K, (2004) Employment of different turbulence models to the design of optimum steel flows in a tundish, *Int. J. Numerical Methods for Heat and Fluid Flow*, Vol.14, No.8, pp. 953-979
22. Dash S K, Mondal S S, and Ajmani S K, (2004), Mathematical simulation of surface wave created in a mold due to submerged entry nozzle, *Int. J. Numerical Methods for Heat and Fluid Flow*, Vol. 14, No.5 pp.606-632
23. Ajmani S K, Dash S K, Sanjay Chandra and Chaitanya Bhanu, (2004) Mixing Evaluation in the RH Process using Mathematical Modeling, *ISIJ International*, Vol. 44, No.1, pp.82-90
24. Dash S K, D N Jha, Satish K Ajmani and Alka Upadhyaya, (2004) Optimization of Tap Hole Angle to minimize Flow Induced Wall Shear Stress on the Hearth, *Ironmaking and Steelmaking International J. of Technological Advances*, Vol.31, No.3, pp. 207-215
25. Ajmani S K, Mondal S S and Dash S K , (2005) Effect of drain cover on entrapment of air while draining a cylindrical vessel, *Int. J. Numerical Methods for Heat and Fluid Flow*, Vol.15, No.4, pp.394-414
26. Dash S K, Dutta M and N Rajesh, (2005) Use of Flow Barriers to Eliminate Vortex in the Flow Field Generated in a Continuous Galvanizing Bath, *ISIJ Int.* Vol. 45, No.7, pp.1059-1065

27. Mondal S S, Som S K and Dash S K, (2005) Numerical predictions on the influences of the air blast velocity, initial bed porosity and bed height on the shape and size of the raceway zone in a blast furnace, *Journal of Physics, D: Appl. Physics*, Vol. 38, pp.1301-1307
28. Mondal S S, Som S K, and Dash S K, (2006) Influences of inlet air pressure, air temperature and secondary air swirl on penetration histories of pulverized coal particles in a tubular combustor, *International J of Thermal Sciences*, Vol.45, pp. 190-202
29. Mondal S S, Som S K and Dash S K, (2005) Energy and exergy balance in the process of pulverized coal combustion in a tubular combustor, *ASME Journal of Heat Transfer*, Vol.127, pp.1322-1326
30. Singh V, Dash S K, Sunitha J S, Ajmani S K and Das A K, (2006), Experimental simulation and mathematical modeling of air bubble movement in slab caster mold, *ISIJ International*, Vol.46, No.-2, pp.210-218
31. Anil Kishan P and Dash S K, (2006) Numerical and Experimental study of circulation flow rate in a closed circuit due to gas jet impingement, *Int. J. Numerical Methods for Heat and Fluid Flow*, Vol.16, No.8, pp. 892-909
32. Bhavin Desai R, R V Ramna and Dash S K, (2006) Optimum coke free space volume in blast furnace hearth by wall shear stress analysis, *ISIJ International*, Vol. 46, No.10, pp. 1396-1402
33. Vikas Singh, Jyoti Kumar, C Bhanu, S K Ajmani and S K Dash, (2007), Optimisation of the bottom tuyeres configuration for the BOF vessel using physical and mathematical modeling, *ISIJ International*, Vol.47, No.11, pp1605-1612
34. P Anil Kishan and S K Dash, (2007) Mixing time in RH ladle with up leg size and immersion depth: A new correlation, *ISIJ International*, Vol. 47, No10, pp.1549-1551
35. M K Roul and Sukanta K Dash, (2009), Pressure Drop Caused by Two-Phase Flow of Oil/Water Emulsions Through Sudden Expansions and Contractions - A Computational Approach, *Int. J. Numerical Methods for Heat and Fluid Flow*, Vol.19, No.5, pp. 665-688
36. P Anil Kishan and Sukanta K Dash (2009) Prediction of Circulation Flow Rate in the RH Degasser Using Discrete Phase Particle Modeling, *ISIJ International*, Vol. 49, No. 4, pp. 495-504
37. S K Dash, (2011) Use of Equation Solving Software in Engineering Education and an Automated examination Process, *Int. J Mech Engg Education*, Vol.38, No.4, pp. 327-338
38. D P Mishra and S K Dash, (2010), Prediction of Entrance Length and Mass Suction Rate for a Cylindrical Sucking Funnel, *Int. J Num Methods in Fluids*, Vol. 63 , No. 6, pp. 681-700
39. D P Mishra and S K Dash, (2010), Isothermal Jet Suction through the Lateral Openings of a Cylindrical Funnel, *SNAME, Journal of Ship Research*, Vol. 54, No. 4, pp. 1-13

40. M K Roul and Sukanta K Dash, (2011) Two-phase pressure drop caused by sudden flow area contraction/expansion in small circular pipes, *Int J Num Methods in Fluids*, Vol.66, No.11, pp. 1420-1446
41. Dipti P Mishra and S K Dash, (2010), Numerical Investigation of air suction through the louvers of a funnel due to high velocity air jet, *Computers and Fluids*, Vol.39, No.9, pp.1597-1608
42. Dipti P Mishra and S K Dash, (2012), Maximum Air Suction into a Louvered Funnel through Optimum Design, *SNAME, Journal of Ship Research*, Vol. 56, No. 1, pp. 1-11
43. M. K. Roul and S.K. Dash, 2012, Single-phase and Two-phase Flow through Thin and Thick Orifices in Horizontal Pipes, *ASME J. Fluids Eng.*, DOI: 10.1115/1.4007267.
44. Rajat Das and S K Dash, 2013, Numerical Analysis of free surface in water model for Design of Submerged Entry Nozzle, *International Journal of Advanced Computer Research*, Vol. 3, No.1, pp.182-187
45. Pandab Patro and S K Dash, (2014) Numerical Simulation for Hydrodynamic Analysis and Pressure Drop Prediction in Horizontal Gas-Solid Flows, *Particulate Science and Technology: An International Journal* (2014), Volume 32, Issue 1, pp. 94-103.
46. Pandab Patro and S K Dash, (2014) Computations of Particle Laden Turbulent Jet Flows Based on Eulerian Model, *ASME Journal of Fluids Eng.* , Vol.136, pp. 011301-16
47. Dipti P Mishra, M K Samantray and S K Dash, (2014) Maximum Air Entrainment into a Mixing Pipe through Optimum Design, *Ships and Offshore Structures*, Vol.9, No.6, pp.605-618
48. Rajat Kumar Das, Chetana Tripathy, Sukanta Kumar Dash (2014), Numerical analysis of the turbulence effects in casting mold due to submerged entry nozzle, *Int. Jou Research in Aeronautical and Mechanical Engineering*, Vol. 2, pp. 61-71
49. Pandab Patro and S K Dash, (2014), Two-fluid modeling of turbulent particle-gas suspensions in vertical pipes, *Powder Technology*, Vol. 264, pp. 320-331
50. Pandab Patro and S K Dash, (2014), Prediction of acceleration length in turbulent gas-solid flows, *Advanced Powder Technology* vol.25, pp. 1643-1652
51. Ashok K Barik, Sukanta K Dash and Abhijit Guha, (2014) New correlation for prediction of air entrainment into an Infrared suppression (IRS) device, *Applied Ocean Research*, Vol.47, pp. 303-312
52. Ashok K Barik, Sukanta K Dash and Abhijit Guha, (2015) Experimental and numerical investigation of air entrainment into Infrared Suppression Device, *Applied Thermal Engineering*, Vol. 75, pp.33-44
53. Sukanta K Dash and Abhijit Guha (2014) A theoretical study of the thermodynamics of gas expansion from a high pressure to a low pressure tank, *Int. Jou of Mechanical Engg Education*, Vol.42, No.2, pp.156-165

54. Ashok K. Barik, Sukanta K. Dash, Pandaba Patro, Subrat Mohapatra, (2014) Experimental and numerical investigation of air entrainment into a louvered funnel, *Applied Ocean Research*, Vol. 48, pp. 176-185
55. R. Dineshkumar, Gunaseelan Dhanarajan, Sukanta Kumar Dash, Ramkrishna Sen, (2015) An advanced hybrid medium optimization strategy for the enhanced productivity of lutein in *Chlorella minutissima*, *Algal Research*, Vol. 7, pp.24-32, Impact factor (2013):**4.095**
56. Ashok Barik, Sukanta K Dash, Abhijit Guha, (2015) Entrainment of air into an infrared suppression (IRS) device using circular and non-circular multiple nozzles, *Computer and Fluids*, Vol.114, pp.26-38
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Books

Engineering Equation Solver, Application to Engineering and Thermal Engineering Problems, Publishers: Narosa Publishing House Pvt. Ltd for India & Alfa Science for rest of the world. ISBN 978-81-8487-262-0

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List of International Conferences

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1. **Senapati, S. K.**, Mohanty, A, and Dash, S. K., 2021, Pneumatic transport of heavy minerals in a horizontal pipe: an Eulerian-Eulerian approach, *Proceedings of the Material TECH 2021, An International Conference on Materials and Technologies*, NIT Raipur, Raipur, India. (Date: 09th Jan 2021)
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3. **Senapati, S. K.**, and Dash, S. K., 2018, “Two fluid modeling of turbulent gas-particle flow in vertically downward abrupt expansion pipe,” *Proceedings of the 7th International and 45th National Conference on Fluid Mechanics and Fluid Power (FMFP)*, IIT Bombay, Mumbai, India. (Date: 11th Dec 2018)

Manoj Kumar Dash

4. **Dash, M. K.**, Behera, S., and Dash, S. K. "Effects of Prandtl Number and Separation Distance on Laminar Natural Convection Heat Transfer from Two Vertically Aligned Horizontal Cylinders". *14th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics (HEFAT)*, July 22-24, 2019, Wicklow, Ireland.
5. Behera, S., **Dash, M. K.**, and Dash, S. K. "Numerical Investigation of Natural Convection Heat Transfer from Bent Plate with Constant Wall Heat Flux". *14th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics (HEFAT)*, July 22-24, 2019, Wicklow, Ireland.
6. **Dash, M. K.**, and Dash, S. K. "Numerical Investigation on Natural Convection from Three Horizontal Cylinder Arranged in Vertical Array". *12th International Conference on Thermal Engineering: Theory and Applications (ICTEA)*, February 23-26, 2019, PDP, Gandhinagar, India, 2019. [Vol 2019 \(2019\): ICTEA: 2019](#)
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15. **Ganguly, V.R.** and Dash, S.K., 2018, "A Comparative Analysis of Different Infrared Suppression (IRS) Devices in terms of Air Entrainment and Exhaust Temperature Suppression: A Numerical Investigation," *Proceedings of 7th International and 45th National Conference on Fluid Mechanics and Fluid Power (FMFP)*, December 10-12, 2018; IIT Bombay, Mumbai, India.
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17. Rath, S. and **Ganguly, V.R.**, 2018, "Computational Analysis and Optimization on Enhancement of Heat Transfer in a Double Helical-Coil Heat Exchanger," *Proceedings of 7th International and 45th National Conference on Fluid Mechanics and Fluid Power (FMFP)*, December 10-12, 2018; IIT Bombay, Mumbai, India.

K. Vidyadhar

18. Conference: 25th National and 3rd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTTC-2019)
Organizer: ISHMT-ASTFE
Date: 28-31 December 2019
Place: IIT Roorkee, Roorkee, India
Title - Microscale modelling of thin-film evaporation on curved wick surfaces
Authors: Vidyadhar Karlapalem and Sukanta Kumar Dash
DOI: 10.1615/IHMTTC-2019.1630
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