Brief CV of Amitesh

Dr. Amitesh Kumar

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ACADEMIA

- *2010* PhD(Doctor of Philosophy)
  Indian Institute of Technology, Kharagpur
  (Metallurgical and Materials Engineering)

- *2002* Master of Technology (CGPA 8.55/10)
  National *Institute of Foundry and Forge Technology, Ranchi, India*
  (Foundry Forge Technology)

- 2000 Bachelor of Engineering (Aggregate 65.1%)
  Nagpur University (VNIT, Nagpur)
  (Metallurgical Engineering)

Title of PhD Thesis

Mathematical modeling of metal droplet impingement on a substrate and its experimental validation

PUBLICATIONS

1. *Kumar A., Ghosh S., Dhindaw B.K.(2007), Simulation of cooling rate of alloy drops during spray casting,* ***Trans. Indian Inst. Met.****, vol. 60, No. 2-3, pp. 185-190*
2. *Kumar A., Ghosh S., Dhindaw B.K. (2010), Simulation of cooling of liquid Al-33wt%Cu droplet impinging on a metallic substrate and its experimental validation****, Acta Materialia****, Vol. 58, pp. 122-133.*
3. *Kumar A.,* Ghosh S., Dhindaw B.K.(2011), Simulation of cooling of double layered splat and its experimental validation using Jackson-Hunt Theory, **Metallurgical Transaction B.,** Vol. 42B, pp. 269 – 273.
4. *Kumar Amitesh, Sahoo Seshadev, Ghosh Sudipto, Dhindaw B. K.,(2012), Effect of process parameters on splat formation during impingement of liquid metal droplets over a cold substrate,* ***Materials Science Forum****, vol. 710, pp. 186-191 .*
5. *Kumar Vinod, Kumar Amitesh,(2012), Simulation of cooling rate of gray cast iron casting in a sand mold and its experimental validation,* ***Materials Science Forum****, vol. 710, pp. 208 – 213.*
6. Seshadev Sahoo, ***Amitesh Kumar***, B.K. Dhindaw, and Sudipto Ghosh, (2012), Modeling and Experimental Validation of Rapid Cooling and Solidification during High-Speed Twin-Roll Strip Casting of Al-33 wt pct Cu, **Metallurgical & Materials Transactions B**, vol.43B, pp. 915-924

7. *Seshadev Sahoo, **Amitesh Kumar**, B.K. Dhindaw and Sudipto Ghosh,(2013) High-speed Twin-roll casting of Al-33wt.%Cu strips with layered Structure, Materials and Manufacturing Processes, Vol. 28, pp. 61–65.*
8. *B. K. Dhindaw, Manish Kumar, **Amitesh Kumar**,(2012) Simulation of Cooling of Liquid Metal in an Inclined Slope to Predict the Condition for Semi Solid Forming and Its Experimental Validation, Trans Indian Inst Met.Vol. 65(6), pp. 581–585.*

9. *Amitesh Kumar, (2014), solidification of impinging molten Metal droplet on a cold substrate, International Journal of Mechanical Engineering Research and Robotics, Vol. 3, No. 2, April 2014, pp. 486-497*

10. *Rahul Kumar, Md. Salim Ansari, Sudhansu Sekhar Mishra, Amitesh Kumar, (2014), Effect of Mould Vibration on Microstructure and Mechanical Properties of Casting During Solidification, International Journal of Engineering Research & Technology, Vol. 3 Issue 4, April – 2014, pp. 90 – 92*

11. *Amitesh Kumar, (2014), Semi Solid Processing of High Chromium Cast Iron, International Journal of Engineering Research & Technology, Vol. 3 Issue 5, May – 2014, pp. 1-4.*

12. *Amitesh Kumar, B. K. Dhindaw, (2014), Semisolid Casting of Aluminium Alloy using an Inclined Slope, International Journal of Engineering Research & Technology, Vol. 3 Issue 4, April – 2014, pp. 1725 – 1730.*

13. *Shrikant Sahu, Mohd. Nadeem Bhat,Ajit kumar,Avinaw Pratik, Amitesh kumar (2014), Effect Of Section Thickness On The Microstructure And Hardness Of Gray Cast Iron (A Simulation Study), International Journal of Engineering Research & Technology, Vol. 3 Issue 7, July – 2014. pp. 35-40.*

14. *P.Vijayanand, **Amitesh kumar**, K.R.Vijaya kumar, Md.Nazir Hussain, P.Kumaran, K RameshBabu, (2014), September 2014, Volume 2 Issue 4, ISSN 2349-4476, Effect of Plasma Spray Composite Coating on Mild Steel, International Journal of Engineering Technology, Management and Applied Sciences.*

15. Kumar Amitesh, Pawar, Kishor, Patel Sushil, Kumar Rahul (2015) *Development of Aluminium-Based Nano- Composite by Casting Route, Indian Foundry Journal, Vol. 61, No. 4, April 2015,* pp.32.
16. Kishor Pawar, Amitesh Kumar(2016), Effect of Ultrasonic Mould Vibration on Microstructure & Mechanical Properties of Pure Aluminium Casting During Solidification, International Journal of Science and Research, Vol. 5, Issue 7, pp. 398-40.
17. *P. Vijayanand, **Amitesh Kumar**, K. R. Vijaya Kumar, A. Vinod, P. Kumaran, and S. Arungalai Vendan, (2017), Characterizations of plasma sprayed composite coatings over 1020 mild steel, Journal of Mechanical Science and Technology 31 (10) (2017) 4747-4754*
18. *P.Vijayanand,**Amitesh Kumar**, K. R. Vijaya Kumar, Nazir Hussain, P.Kumaran and S. Arungalai Vendan,(2017), Influence of Carbon Nanotube Reinforced TiO2-Al2O3 Coating Mixture on AISI 1020 Surface Performance, Rasayan J. Chem., 10(2), 652-664.*

Paper Presented in Conferences:

1. Kumar A., Ghosh S., Dhindaw B.K., Mathematical Modelling of Cooling of Liquid Metal Droplets Sequentially Impinging on a Metal Substrate and its Experimental Validation, presented in a symposium NMD-ATM 2011 in Hyderabad during Nov. 13 – 16, 2011.

2.Dhindaw B.K Kumar Amitesh, Ghosh S., Impingement of metal droplet and its solidification on a substrate, presented in International symposium NMD – ATM 2010 at IISc, Bangalore, during Nov. 14 – 16, 2010.

3.Kumar Amitesh, Ashwini Kumar, Md. Imran Aslam, Effect of vibration on casting structure and properties, presented in International symposium NMD – ATM 2010 at IISc, Bangalore during, Nov. 14 – 16, 2010.

4. Kumar A., Ghosh S., Dhindaw B.K., A two dimensional model of droplet impact and solidification, presented in International symposium NMD – ATM 2009 in Kolkata.

5. Kumar A., Ghosh S., Dhindaw B.K., Deposition of atomized droplet over stainless steel substrate, presented in International Symposium NMD-ATM 2008 in New Delhi.

6. Kumar A., Ghosh S., Dhindaw B.K., Simulation of cooling rate of alloy drops during spray casting; International conference of solidification science and processing(ICSSP – III), 19th – 21st November, 2006, held at Jaipur, India.

7.Kumar A., Ghosh S., Dhindaw B.K., Computation of microstructure of falling Al-Cu eutectic droplet using cellular automata, presented in International Conference ICAMDD – 2005 in Goa India.

8. Vinod Kumar, **Amitesh Kumar**, and Himanshu Garg, Modeling of physithermal conditions in an inclined slope gradient furnace for semi solid castings presented in International symposium on Converting challenges into opportunities: Iron & Steel NMD-ATM 2012, during 16th – 19th November, 2012 at Jamshedpur, Jharkhand, India.

9.Shrikant Sahu, **Amitesh Kumar**, Comparative study of SiC and Fe-Si addition on the characteristics of gray cast iron melts poured at different temperatures, presented in International symposium on Converting challenges into opportunities: Iron & Steel NMD-ATM 2012, during 16th – 19th November, 2012 at Jamshedpur, Jharkhand, India.

10.Amitesh Kumar, Vijay toppo, Wear resistance of semi solid processed cast iron, presented in International symposium on Converting challenges into opportunities: Iron & Steel NMD-ATM 2012, during 16th – 19th November, 2012 at Jamshedpur, Jharkhand, India.

11.K. Kiran Babu, M. Anand Kumar, P. Ravi Kiran, **Amitesh Kumar**, Effect of eutectic cell size, eutectic phosphide percentage and graphite flakes morphology on mechanical properties of Gray Cast iron, presented in International symposium on Converting challenges into opportunities: Iron & Steel NMD-ATM 2012, during 16th – 19th November, 2012 at Jamshedpur, Jharkhand, India.

12.Amitesh Kumar, Ram Singh, Low shear stress casting of cast iron, presented in International symposium on Converting challenges into opportunities: Iron & Steel NMD-ATM 2012, during 16th – 19th November, 2012 at Jamshedpur, Jharkhand, India.

13.Kumar Amitesh, Kumar Vinod, Sudipto Ghosh, Dhindaw B. K., Impingement and Solidification of Molten Metal Droplet on a Cold Substrate, presented in 2nd Annual International Conference on Materials Science, Metal & Manufacturing (M3 2012) during 19th - 20th November 2012, at Hotel Fort Canning, **Singapore.**

14.Shubham Srivastava, Prasoon Kumar and Amitesh Kumar, COMPARISON OF CASTING USING MAGNETIC MOLDING AND LOST FOAM PROCESSES IN Al-Si ALLOY, presented in 67th ATM of IIM at IIT(BHU), Varanasi, November 12-15, 2013

15.Upendra Kumar Hembram and Amitesh Kumar,MICROSTRUCTURAL MODIFICATIONS AND CHANGES IN MECHANICAL PROPERTIES DURING MOULD VIBRATION CASTING of Al-6wt% COPPER, presented in 67th ATM of IIM at IIT(BHU), Varanasi, November 12-15, 2013

16.Vinod Kumar, Himanshu Garg and Amitesh Kumar, MECHANICAL PROPERTY AND MICROSTRUCTURAL VARIATION IN SEMI SOLID PROCESSED HIGH CHROMIUM CAST IRON, presented in 67th ATM of IIM at IIT(BHU), Varanasi, November 12-15, 2013

17.Vipul Kumar Gupta, Navin kumar and Amitesh Kumar, EXPERIMENTAL INVESTIGATION OF EFFECT OF PROCESS PARAMETERS OF FRICTION STIR WELDING OF ALUMINIUM ALLOYAA2014, presented in 67th ATM of IIM at IIT(BHU), Varanasi, November 12-15, 2013

18.Shivam Ahuja and Amitesh Kumar, EFFICIECY OF CHILL AND RISER WHILE HANDLING THE SHRINKAGE DEFECT, presented in 67th ATM of IIM at IIT(BHU), Varanasi, November 12-15, 2013

19.Tushar Kinkar and Amitesh Kumar, PRODUCTION OF QUALITY STEEL AT CHEAPER COST FROM RECYCLING OF WASTE MILL SCALE GENERATED IN HOT ROLLING OF STEEL BILLET, presented in 67th ATM of IIM at IIT(BHU), Varanasi, November 12-15, 2013.

20. Vinod Kumar, Himanshu Garg, Amitesh Kumar, Study of Mechanical Property and Microstructure of Semi Solid Processed High Chromium Cast Iron, Presented in The 2014 Look East Steel Conference at Ranchi, on 9th March, 2014.

21.Md. Salim Ansari, Amitesh Kumar, Hemant Kumar and B.S. Manjunath, Prediction and Experimental Validation of Shrinkage in Lead Castings, International Conference on Advances in Materials and Manufacturing (ICAMM '17), January 19-21, 2017, ISBN: 978-93-86256-36-2 , January 19-21, 2017, pp- 100-102.

22.An invited talk on Theoretical and Experimental Study of Structure Formation in Binary Al–Cu eutectic at Different Cooling Rates, Amitesh Kumar, in The 4th International Conference on Advances in Materials & Materials Processing(ICAMMP – IV) at Deptt. of Met. & Mat. Engg., IIT Kharagpur during Nov. 5 – 7, 2016.

23.Amitesh Kumar, Rahul Kumar, (2016) , A paper "Al-Based Nano-composites Developed by Ultrasonic Casting Route" was presented in National Conference on Emerging Technologies in Foundry and Forge at National Institute of Foundry and Forge Technology, Ranchi during Nov. 25-26, 2016.

24.Mukkollu Sambasiva Rao, Amitesh Kumar, (2016), A paper "Effect of Cooling Rate on Microstructure and Mechanical Properties of Thin-Walled Spheroidal Gray Iron Castings" was presented in National Conference on Emerging Technologies in Foundry and Forge at National Institute of Foundry and Forge Technology, Ranchi during Nov. 25-26, 2016.

25. **Amitesh Kumar**, Modification of Microstructure and Properties of Ductile Iron by Inclined Slope Casting, presented in International Symposium on Lightweighting for Defence, Aerospace and Transportation, 71st NMD ATM of IIM at BITS, Pilanbi-KK Birla Goa Campus, India, November 11-14, 2017.

26. **Amitesh Kumar**, Modeling and Experimental Validation of Deformation of Al-33Cu Droplet during Impingement on a Substrate, was presented in The 3rd International Conference on Manufacturing, Materal and Metallurgical Engineering Kuala Lumpur, Malaysia, March 17-19, 2018

Sponsored Research Project

1. **Development of Al based Nano-Composite by Ultrasonic Non Contact Casting Route**
   PI: Amitesh Kumar
   Total Grant: 12.6 Lakhs
   Sponsored by: SERB(DST), New Delhi
   Date of Release of Grant: 05.01.2013

2. **Modeling and Simulation of Lead Alloy Solidification and Experimental Validation**
   PI: Amitesh Kumar
   Total Grant: 34.5 Lakhs
   Sponsored by: BARC, Mumbai
   Date of Release of Grant: 25.06.2013

3. **Sandless casting process**
   Co-PI: Amitesh Kumar
   Total Budget: ₹24.95 Lakhs
   Sponsored by: DST, New Delhi, Advanced Manufacturing Technology (AMT) Program of DST

EMPLOYMENT HISTORY

▪ *August 2015 onwards*	*NIFFT, Ranchi*	*Associate Professor (AGP= Rs. 9000/-)*
▪ *July 2010 onwards*	*NIFFT, Ranchi*	*Assistant Professor (AGP = Rs. 7000/-)*
▪ *June 2006 onwards*	*NIFFT, Ranchi*	*Assistant Professor (AGP= Rs. 6000/-)*
▪ *June 2002to Sept. 2003*	*CFL, Howrah*	*Foundry Engineer*
▪ *Oct. 2003 to Jan. 2005*	*CMERI, Durgapur*	*Junior Research Fellow*

BEYOND CURRICULUM

- Organising member for National Conference on Materials Processing at NIFFT Ranchi.
- Consultancy on " Preparation of Detail Project Report for common Facility Center for Bauripur Surgical Cluster, Kolkat, W.B.; Taken by Dr. A. K. Singh, Dr. K. K. Singh and Dr. Amitesh Kumar. The consultancy charge of Rs. 10.0 Lacks.
- Book Reviewed by Dr. Nandita Gupta and Dr. Amitesh Kumar for Petroleum Conservation and Research Association(PCRA) (Ministry of Petroleum and Natural Gas), New Delhi.
- Member of organizing technical committee of NCETFF 2016
- Member of organizing committee of ICAMM 2017

PERSONAL DETAILS

Date of Birth : January 21, 1976.
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Department of Foundry Technology

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