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CURRICULUM VITAE
of
DR. DIPAK MAZUMDAR

**Emeritus Faculty, Department of Materials
Science & Engineering
Indian Institute of Technology
Kanpur, 208016 (INDIA)**

CV at a glance



Professor Dipak Mazumdar, a *distinguished Alumnus* of NIT Jamshedpur, obtained his Doctoral degree in 1985 in Process Metallurgy from McGill University, Montreal, Canada, with honours. Following his Ph.D. and Post Doctoral Research Associateship at McGill, *Dr. Mazumdar* returned to India during early 1987 and joined IIT Kanpur, where he is currently a professor, since 1995. *Dr. Mazumdar* has also worked with the McGill Metals Processing Centre, McGill University, Montreal and the Department of MSE, University of California, Berkeley, during the periods he was on leave from IIT Kanpur. He has over one hundred seventy five publications to his credit and has written two text books on, “Modelling of Steelmaking Processes (2009)” and a “A first course in Iron and steelmaking (2015)”.

Numerous awards and accolades have been bestowed on Professor Mazumdar for his seminal contributions to steelmaking research and education. These include, “Kamani Gold Medal of IIM (1990)”, International Scientific Exchange Award from NSERC, Canada (1992), “Metallurgists of the Year Award (2000)” from the Ministry of Steel, Govt. of India, “SAIL Gold Medal (2001,2012 and 2020)” from the Indian Institute of Metals, the “GD Birla Gold Medal of the Indian Institute of Metals (2009)” and the coveted INAE Chair Professorship in 2011 and the Ministry of Steel Chair Professorship during 2012-2017. For his pioneering contribution to the domestic steel production sector, he has been awarded the Vasvik Industrial Research Award in 2010. Professor Mazumdar has been a recipient of the “Distinguished Industry Professorship-2013” award from the Indian National Academy of Engineering. For his sustained contribution ethics, teaching and research, Prof. Mazumdar received the “IIM Distinguished Educator Award (2014)” from the Indian Institute of Metals, “Outstanding Teacher Award (2015)” from INAE as well as “Excellence in Teaching Award (2021) from IIT Kanpur. In 2019, Professor Mazumdar was honoured with the “National Metallurgist award (Academic and R&D)” by the Ministry of Steel, Govt. of India.

He is a Fellow of The Indian National Academy of Engineering & The Indian Institute of Metals and served as Editorial Board members for Materials & Metallurgical Transactions B, ISIJ International and Transactions of the Indian Institute of Metals and works closely with more than a dozen, domestic steel and refractory industries.

Name: Dipak Mazumdar

Date of birth: February 9th,1958

Place of birth: Dhubri, Assam (India)

Present position: Emeritus Faculty
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Metallurgical Engineering, I.I.T
Kanpur, 208016

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Metallurgical Engineering,
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EDUCATIONAL QUALIFICATIONS:

Year	Institution/University	Degree	Rank
1980	Regional Institute of Technology, Jamshedpur	B.Sc. Engg. (Metallurgy)	1st in Ranchi University
1982	Indian Institute of Technology, Kanpur	M.Tech.(Metallurgy)	1st in a class of 25
1985	McGill University, Montreal,Canada	Ph.D. (Metallurgy)	Dean's Honour

Area of specialisation: Steelmaking: Physical and mathematical modelling of metals and materials processing operations.

PREVIOUS POSITIONS:

(i) Post-Doctoral Research Associate in the Department of Mining & Metallurgical Engineering, McGill University, Montreal, Canada (1985-1986).

(ii) Assistant Professor in the Department of Metallurgical Engineering, I.I.T, Kanpur, India (1987-1992).

(iii) International visiting scholar, McGill Metals Processing Centre, McGill University, Montreal, Canada (1992-94).

(iv) Associate Professor in the Department of Materials and Metallurgical Engineering, IIT, Kanpur (1993-1995).

(v) Visiting Professor, McGill Metals Processing Centre, McGill University, Montreal, Canada (1998-99).

(vi) Visiting Scientist, Department of Materials Sc. And Engg., University of California, Berkeley, 94720, USA (May-July, 2001).

(vi) Visiting Scientist, Department of Materials Sc. And Engg., University of California, Berkeley, 94720, USA (May-July, 2003).

(vi) PE Hearst International Scholar, Department of Materials Sc. and Engg., University of California, Berkeley, 94720, USA (July2006-June 2007).

(vii) Chairperson, Department of Materials Sc. and Engg., IIT Kanpur (Jan.2009-Dec.2011).

(viii) Professor in the Department of Materials Sc. And Engineering, IIT, Kanpur (1995-2023).

TEACHING EXPERIENCE:

1985-to date; at both under - graduate and post - graduate levels; the following subjects were taught:

(i) Steelmaking

(ii) Heat and Mass Transfer

(iii) Computing Applications in Metallurgy

(iv) Metallurgical Kinetics

(v) Application of Transport Phenomena in Metals Processing[#]

(vi) Modelling of steelmaking processes[#]

(vii) Secondary steelmaking[#]

Developed at IIT Kanpur

PROFESSIONAL AWARDS:

- (i) **Kamani Gold Medal** of the Indian Institute of Metals for best paper published in Transactions of IIM (1989).
- (ii) **International Scientific Exchange Award** of NSERC, Canada (1992-1993).
- (iii) Best oral presentation award in non-ferrous section of **the 49th Annual Technical Meeting** of the IIM (1995).
- (iv) **Metallurgists of the year award** by the Ministry of Steel and Mines, Govt of India (Nov.2000).
- (v) **SAIL Gold Medal** of the Indian Institute of Metals for best paper published in Transactions of The Indian Institute of Metals (2001).
- (vi) Best oral presentation award in “Modelling session” of **the 61st Annual Technical Meeting** of the IIM (2007).
- (vii) **GD Birla Gold Medal** of the Indian Institute of Metals (2009).
- (viii) **SAIL Gold Medal** of the Indian Institute of Metals for best paper published in Transactions of The Indian Institute of Metals (2012).
- (ix) **Vasvik Industrial Research Award** (2013).
- (x) **Distinguished Educator Award**, Indian Institute of Metals (IIM)(2014).
- (xi) **Outstanding Teacher Award**, Indian National Academy of Engineering (INAE) (2015).
- (xii) **National Metallurgist Award**, Ministry of Steel, Govt. of India, 2019.
- (xiii) **SAIL Gold Medal** of the Indian Institute of Metals for best paper published in Transactions of The Indian Institute of Metals (2020).
- (xiv) **Excellence in Teaching** award, Indian Institute of Technology, 2021.
- (xv) **Distinguished Alumnus Award**, NIT Jamshedpur, 2023.

ACADEMIC HONOURS:

- (i) Place in the **Dean's Honour List** for the entire Ph.D. programme of studies at McGill University (Fall 1985 graduation)
- (ii) Member, **Editorial board of Materials and Metallurgical Transactions**, TMS, USA (2001-2018).
- (iii) **Fellowship of the Indian National Academy of Engineering (INAE)** (2002).
- (iv) **Editor of Transactions of the Indian Institute of Metals** (2003-05,2012-16).
- (v) **Fellowship of the Indian Institute of Metals (IIM)** (2005).

- (vi) **Indian National Academy of Engineering (INAE)** Chair Professorship (2011-2013).
- (vii) **Ministry of Steel, GoI**, Chair Professorship (2012-2017).
- (viii) **INAE** Distinguished Industry Professor (2013).
- (ix) **4th COEST (IIT-Bombay)** Annual lecture (2016).
- (x) **8th CNR RAO** Distinguished lecture series speaker (IIT Kanpur, 2017).
- (xi) Advisory Board Member, **ISIJ International, Iron and steel Institute of Japan** (2021-2024).

POST GRADUATE RESEARCH SUPERVISION:

(a). M.Tech

- (i) **Devulapalli Balaji** (1989); Thesis topic: "*Mathematical modelling of combination blown steelmaking processes.*"
- (ii) **Amarendra Kumar Singh** (1990); Thesis topic: "*Mathematical modelling of thermal fields during heat treatment of steel.*"
- (iii) **Chaitanya Bhanu** (1997); Thesis topic: "*Hydrodynamic modelling of steelmaking tundish systems.*"
- (iv) **Rakesh Kumar** (1997); Thesis topic: "*Modelling of mixing and mass transfer phenomena in gas agitated reactors.*" (Co-supervisor: Prof. B. Deo, Dept. of MME, IIT, Kanpur).
- (v) **Asish Robert** (1998); Thesis topic: "*Mathematical Modelling of flow and Residence Time Distributions in different tundish designs.*"
- (vi) **Kamalesh Mandal** (1998); Thesis topic: "*Physical and mathematical modelling of flow and mixing in CAS systems with large aspect ratio.*"
- (vii) **Binod Bihari Mahato** (2001); Thesis topic: "*Modelling of flow and mixing in gas stirred ladle under transient conditions.*"
- (viii) **Projit Mitra** (2001); Thesis topic: "*Mathematical Modelling of three-dimensional turbulent flows in some steelmaking operations.*"
- (ix) **Santosh K Rout** (2001); Thesis topic: "*Modelling of steady and transient flows in gas stirred ladle systems.*"
- (x) **Jayanta Mandal** (2003); Thesis topic: "*Mixing times in ladles stirred with dual porous plugs.*"
- (xi) **D. Satish** (2003); Thesis topic: "*Flow, mixing and mass transfer in dual plug stirred ladles in the presence of an upper buoyant slag phase.*"
- (xii) **M. Madan** (2004); Thesis topic: "*Numerical simulation of flow phenomena in rotating viscometers.*"
- (xiii) **D. Chatterjee** (2005); Thesis topic "A computational and experimental study of fluid flow phenomena in a hollow jet Nozzle".
- (xiv) **Sujoy Patil** (2005); Thesis topic "Mixing models for slag covered ladles".

- (x) **Rajeev K Singh (2007)**: Thesis topic “Mathematical Modeling of fluid flow, mixing and hydrodynamic refractory wear in gas stirred ladles for different bottom designs”.
- (xi) **S. Anand (2008)**: Thesis topic “Fluid flow and residence time distributions in two different slab casting tundish designs”.
- (xii) **A. Muthuchammy (2009)**: Thesis topic “A thermo-chemical model for charge proportioning in an Energy optimizing Furnace”.
- (xiii) **K. Rajasekar (2009)**: Thesis topic “Modelling of inclusion removal kinetics in steelmaking tundish”.
- (xiv) **M. Peranandhanathan (2010)** Thesis topic “Slag eye area: measurements and correlations”.
- (xv) **Sumanta Bagui (2010)**: Thesis topic “The role of a near strand dam on the metallurgical performance of slab caster tundish”.
- (xvi) **Ranjeet K. Singh (2010)**: Thesis topic” Measurements and modeling of heat flow in high temperature furnace and steelmaking reactors”.
- (xvii) **Bapin K Rout (2011)**: Thesis topic “Physical modeling of transport processes in an Energy Optimizing Steelmaking furnace”.
- (xviii) **Ishant Jain (2011)**: Thesis topic “Thermal modeling and measurements in high temperature steelmaking operations”.
- (xix) **Anurag Nandwana: (2011)** Thesis topic “Physical & mathematical modeling of fluid flow phenomena in slab casting mold of different section size (>1500mm).
- (xx) **Aniket Dutt (2012)**: Thesis topic “The role of tundish design on residence time distributions (RTD) and slag entrainment phenomena”.
- (xxi) **Sharvana Kumar R (2012)**: Thesis topic “Modeling and optimization of argon rinsing practice in ladle metallurgy steelmaking operations”.
- (xxii) **K Murlikrishna (2012)**: Thesis topic “Physical modeling of grade intermixing phenomena in a four strand bloom casting tundish”.
- (xxiii) **P.Dhandapani (2013)**: Thesis topic “Modeling and Optimization of slag eye area and mixing time in ladle metallurgy steelmaking”.
- (xxiv) **Suvajit Choudhary (2014)**: Thesis topic:” Modeling of material and thermal mixing in steelmaking tundish systems”.
- (xxv) **Goutam Mandal (2014)**: Thesis topic “Modelling and measurement of heat flow during solidification of metals and alloys”.
- (xxvi) **Pari R (2014)**: Thesis topic: “Modeling and measurement of intermixing time in a slab casting tundish fitted with different flow control devices”.
- (xxvii) **Soumava Chakraborty (2015)**: Thesis topic: “Modeling of solidification of large, round steel ingots and validation against industrial scale measurements”.

(xxviii) **Lipsa Das (2016)**: Thesis topic “Simultaneous teeming of two ladles into a launder, hydrodynamic, thermal and material mixing”.

(xxix) **Rishikesh Misra (2016:BT-MT)**: Thesis topic: “Physical and Mathematical modeling of slag entrainment during drainage of steelmaking ladles”.

(xxx) **Rohan Sharma (2016:BT-MT)**: Thesis topic: “Transient, multi-phase modeling of tundish hydrodynamics during end of sequence casting operation”.

(xxxii) **Krashnavtar (2017:BT-MT)**: Thesis topic: “Mathematical modeling of grade intermixing phenomena in a four strand bloom casting tundish” (*Best Master Degree thesis award in Materials and Metallurgical Engineering, IIM, 2017*).

(xxxiii) **Subham Ranjan(2017:BT-MT)**: Thesis topic “Inert gas injection into steelmaking tundish and possible improvement in steel cleanliness”.

(xxxiv) **Rohit K. Tiwari (2018)**: Thesis topic “Fluid dynamic and thermal modeling of homogeneous and two phase flows in ladle shroud”.

(xxxv) **Sayantana Chakraborty (2019)**: Thesis topic: “Physical and mathematical modelling of intermixing time in steelmaking tundish under constant throughput rate”.

(xxxvi) **Zunaid Alam (2020)**: Thesis topic “Modelling of Flow and Mixing in a mechanically agitated steelmaking ladle and comparison with equivalent gas stirred ladle”.

(xxxvii) **Chandan Kumar (2021)**: Thesis topic: “The effects of inert gas shrouding on the behavior of free jet length, tundish open eye and penetration depth: Physical modeling and numerical analysis”.

(xxxviii) **Ankur Agnihotri (2022)**: Thesis topic: “Tundish process performance evaluation via numerically predicted RTD and its correspondence with plant scale measurements”.

(b).Ph.D

(i) **Shiv Kumar Choudhary (1994)**: Thesis topic: "*A study on fluid flow, heat transfer, morphology and macro segregation in continuous casting of steel*" (Co-supervisor: Prof. A. Ghosh, Met. Engg.).

(ii) **Anil Kumar (2005)**: Thesis topic: “*Physical and mathematical modelling of flow and Residence Time Distributions in a multi strand continuous casting tundish*” (Co-Supervisor: Prof. S.C. Korla).

(iii) **Prince K Singh (2019)**: Thesis topic: “*A Physical and mathematical modeling investigation of two-phase flows in ladle shrouds and attendant influence on tundish hydrodynamic performance*”.

(iv) **Suvam Mukherjee (2023)** Thesis topic: “*Argon shielding and air ingress phenomena in ladle shroud: a modeling, design and industrial scale study*”.

(v) **Rishikesh Mishra (2024, Submitted)** Thesis topic: “A fundamental study of *Multiphase flow and mass transfer in inert gas stirred ladles*”.

(vi) **Krashnavtar (on going)**: Thesis topic: “Swirling and chemically reacting flows in Steelmaking reactors: Application to continuous bloom casting and AOD converters”.

(vii) **Subham Ranjan (on going)** Thesis topic: “A Reacting, multiphase modelling study of hot-metal flow in a blast furnace trough”.

SPONSORED RESEARCH:

(i) **MHRD** funded project for INR. 2.0×10^6 on “*Specialised training program on applied mathematical modelling and process simulation*”(1988-1991), (Co - investigators: Profs. B. Deo and N. Chakraborty).

(ii) **NMIS** funded project for INR 1.2×10^6 on “*Some fundamental studies of continuous casting of steel*” (1989-1992) (Co - Investigators: Profs. A. Ghosh and S.C. Korla).

(iii) **RDCIS (SAIL)** funded sponsored project for INR 0.6×10^6 on “*Mathematical modelling of transport phenomena in steelmaking tundishes*” (1996-1998).

(iv) **Ministry of Steel** funded sponsored project for INR 1×10^6 on “*Mixing and Mass transfer in Ladles stirred with dual porous plug*” (2001-2004).

(v) **Department of Science and Technology**, Govt of India funded sponsored project for INR 1.2×10^6 on “*Control of superheat in continuous casting through Hollow Jet Nozzle*” (2003-2006).

(vi) **Department of Science and Technology**, Govt. of India funded sponsored project for INR 2.8×10^6 on “*Measurement and modeling of temperature in steelmaking*” (2009-2011).

(vii) **Ministry of Steel**, Govt. of India funded sponsored project for INR 6.187×10^6 on “*Setting up of a comprehensive water modeling laboratory for steelmaking process analysis and design*” (2011-2013).

(viii) **Ministry of Steel**, Govt. of India funded sponsored project for INR. 2.0×10^6 titled “*A study on requirement and availability of technical manpower for steel industry in India (2014-2015)*”.

ix) **Ministry of Steel**, Govt. of India funded sponsored project for INR. 154×10^6 titled “*Fundamental process engineering to minimize reoxidation of steel during teeming via a ladle shroud leading to improved castability and cleanliness*” (2018-2020)”.

INDUSTRY FUNDED RESEARCH:

- (i) **"Dense phase powder injection in metallurgical reactors"** sponsored by Shawinigan carbide, Shawinigan, Canada, 1983.
- (ii) **"Physical and mathematical modelling of MINTEQ tundish designs"** sponsored by MINTEQ International Inc., Easton, PA, USA, 1993.
- (iii) **"Modelling studies for ladle addition of ferroalloys"** sponsored by Elkem Development Centre, Pittsburgh, USA, 1993
- (iv) **"Enhancing productivity at Ispat's Dolvi plant through improvement of tundish performance"** Sponsored by ISPAT Industries, Dolvi, Maharashtra (India, Jan-April, 2004).
- (v) **"On the relocation of porous plugs in LF for superior process performance at Dolvi plant through physical and mathematical modelling"** Sponsored by ISPAT Industries, Dolvi, Maharashtra (India, Oct.04- Jan, 2005).
- (vi) **"Performance enhancement and optimisation of tank degasser"** at the Hospet Steels, Ginigera, Karnataka, Sponsored by Mukand Ltd., Mumbai (Aug., 2005-Nov., 2005).
- (vii) **"Enhancing productivity at Hospet steel plant through improvement in tundish design"** Sponsored by Mukand steel Hospet Karnataka, India, Feb-May, 2006.
- (viii) **"Improving yield and steel cleanliness in the 32T new tundish"** Sponsored by JSW steel Ltd., Torangallu, (India, July-Sept., 2007).
- (ix) **"Improving yield from the 36T slab casting tundish at JSPL, Raigarh"** Sponsored by JSPL, Raigarh (India, December, 2007 –March 2008).
- (x) **"A charge calculation model for increased throughput operation of the Energy Optimising Furnace (EOF) at Hospet Steel, Hospet"** Sponsored by Hospet Steel., Hospet (India, September, 2008).
- (xi) **"Improving yield and steel cleanliness in the 27T four strand bloom casting tundish at RINL's Vizag steel works"** Sponsored by Vishakhapatnam steel plant, Vishakhapatnam (India, August, 2008-January, 2009).
- (xii) **"Improving yield and steel cleanliness in the four strand combicaster tundish at JSPL, Raigarh"** Sponsored by Jindal Steel and Power Limited, Raigarh (India, August, 2009-January, 2010).
- (xiii) **"Reduction in tap to tap time for EOF (Energy Optimizing Furnace Operations) at Hospet Steel"** Sponsored by Hospet Steel., Hospet (India, January, 2010).
- (xiv) **"Defect free casting of larger section continuously cast slabs(>2500mm) at JSPL, Raigarh"** Sponsored by Jindal Steel and Power Limited, Raigarh (India, November 2010).
- (xv) **"Minimisation of transition bloom volume from the 27T four strand bloom casting tundish at RINL, Vishakhapatnam"** Sponsored by Vishakhapatnam steel plant, Vishakhapatnam (India, September 2011- January 2012).

(xvi) **“Improving yield and steel cleanliness in the three strand T shaped tundish”** Sponsored by MUSCO, Khopoli (India, October, 2011-March,2012)

(xvii) **“Technical audit of ferroalloy production at CFP Chandrapur and possible means for plant performance enhancement”** Sponsored by SAIL, Delhi (August –December 2014).

(xviii) **“The origin of surface cracks in large round ingots and means for its elimination”** Sponsored by Mahindra Sanyo Special Steel, Khopoli (September 2014- February 2015)

(xix) **“A study on the scope of in-situ conversion of scrap into steel sheet/strip via the induction melting-ingot casting and hot rolling route”** Sponsored by IFB Industries, Bangalore (February, 2015-May, 2015)

(xx) **“Steelmaking process performance improvement and knowledge management”** Sponsored by Vardhman Special Steels Limited, Ludhiana (April 2015-March 2016).

(xxi) **“Perspex water models of industrial continuous casting tundish systems, water modeling and technical manpower training”** Sponsored by Hi-Tech Group Limited, Jamshedpur (October 2015-September 2016).

(xxii) **“Reduction of ladle balance and improvement of yield from the 140-ton steel at RINL’s Vizag steel works”** Sponsored by Vishakhapatnam Steel Plant (Feb.1st 2016-July 31st, 2016).

(xxiii) **“An assessment of CONARC process performance and strategy for improved furnace performance”** Sponsored by JSW, Dolvi (March-December 2017)

(xxiv) **“Modelling of steelmaking processes”** Sponsored by MN Dastur and Co., Kolkata (June 2017-May 2018).

(xxv) **“Operating databased regression model for prediction of BF Trough wear”** Sponsored by Calderys India Refractories, Nagpur (January 2020-June 2020)

(xxvi) **“Improving steel cleanliness by engineering of ladle – Shroud-Tundish steel processing circuitry”** Sponsored By Sunflag Steel Limited, Nagpur (February2020-August 2020)

(xxvii) **“Numerical prediction of flow, heat transfer and inclusion trajectory in a conventional continuous slab casting mould”** Sponsored by Dalmia Bharat Refractories (June2022 - August2022).

(xxviii) **“Study of Ladle-shroud-Tundish operations at SLR Metaliks and improvement of steel cleanliness through CFD and plant scale measurements”** Sponsored by SLR Metaliks, Hospet (April-Dec.2023)

(xxix) **“Numerical prediction of flow, heat transfer, solidification and inclusion trajectory in stainless steel slab casting mold”** Sponsored by JSL, Jajpur (April-December

2024).

INTENSIVE/SHORT-TERM COURSES:

(i) "**Secondary Steelmaking**" offered to industrial, academic & R & D engineers (Dec.1990 and Dec.1991) (Joint Convenor: Prof. A. Ghosh, Dept.of Met. Engg. IIT/K).

(ii) "**Modelling of modern steelmaking processes**" offered to Industrial and R & D engineers (Jan.96 and Sept.97) (Joint Convenor: Prof.B. Deo, Dept. of MME, IIT/K).

(iii) "**Modelling in metals processing: concepts, theory and application**" offered to Industrial and R & D engineers (February 2005, December, 2005; December 2007; January,2009).

(iv) "**Iron and Steelmaking (Foundation and advanced level)**" offered to Engineers from steel and refractory industries (May, June 2009; May 2010, May 2011).

(v) "**EAF and Secondary Steelmaking**" offered to Engineers from Steel and Refractory Industries (August 2008 and September 2011).

(vi) "**Tundish Metallurgy: Towards improved productivity and clean steel**" offered to Engineers from steel and refractory industries (September 2012; August 2013).

(vii) "**Ladle Metallurgy Steelmaking: Towards better productivity and product quality**" offered to Engineers from steel and refractory industries (August 2014 and August 2015).

(viii) "**Inclusions in steel and clean steel technology**" offered to Engineers from steel and refractory industries (August 2016).

(ix) "**Clean steel technology**" offered to Engineers from steel and refractory industries (August 2017).

(x) "**Steelmaking, refractories and plant practices**" offered to engineers from steel, refractory and design organisations (August 2018, and 2019).

(xi) "**Tundish Metallurgy and Clean Steelmaking**" offered to Engineers from steel and refractory industries (February2020). [Co-Instructor, Prof. Kinnor Chattopadhyay, University of Toronto, Canada].

(xii) "**Steelmaking and refractories**" offered to engineers from steel, refractory and design organisations (Nov.2022, March 2023, Nov.2023 and October 2024)

(xiii) "**Material and Energy balance in an Energy optimising steelmaking furnace**", training programme for Hospet steel Engineers at Hospet, Dec. 2022.

(xiv)” Defects related to processing and casting of steel” training programme for Neco-Jayaswal Industries limited Engineers at Raipur (June 2023).

PATENTS:

A tundish adapted for reduction in residual metal losses and a method thereof

No: 1397/MUM/2008

List of inventors: D Satish Kumar, **Dipak Mazumdar**, B. Reddi Prasad, Sujay Pandit Patil, Abijit Sarkar, P.C. Mahapatra & Madhu Ranjan.

PROFESSIONAL BODY MEMBERSHIP:

- (i) Life Member of the **Indian Institute of Metals**.
- (ii) Member of the **Association of Iron and Steel technology (AIST)**.
- (iii) Member, Programme Advisory Committee, **MMME, DST, Govt. of India**, (2012-2015, 2015-2018, 2019-2021).
- (iv) Member, Governing Council, **Indian National Academy of Engineering**, (2016-2018, 2019-2021).
- (v) Member, Board of Governors, **National Institute of Secondary Steel Technology, Ministry of Steel, Govt. of India**, (2015-2017).
- (vi) Member, Education and Publication Committee, **Indian Institute of Metals**, (2010-2020).

PUBLICATION SUMMARY:

H-Index=32: Total citations:3875 (Google scholar) No. of Publication in refereed journals: One Hundred Thirty Two (132); No. of Publication in Proceedings: Fifty-six (56) (as on 31st July2024).

Video lectures/on-line courses

(1) National Programme on Technology Enhanced Learning (NPTEL, Govt. of India)

D. Mazumdar and S.C. Koria: Steelmaking, <http://nptel.ac.in/syllabus/113104013/>

(2) YouTube Channel and Video Lectures

<https://youtube.com/channel/UCPssttUWomJxGNSPA vbmpPg>

(2) Books

(1) P. Assis, B. Deo, D. Mazumdar and N. Chakraborty: *Modelling and Simulation of Iron and Steelmaking*, Revista Escola de Minas, Ouro Preto, Brazil,1998.

(2) D. Mazumdar and J. W. Evans: *Modeling of Steelmaking Processes*, CRC Press, Boca Raton, Florida, USA ,2009.

(3) D. Mazumdar and J. W. Evans: *Solution manual for Modeling of Steelmaking Processes*, CRC Press, Boca Raton, Florida, USA, 2009.

(4) D. Mazumdar: *A first course in Iron and Steelmaking*, Universities Press, Hyderabad, 2015.

(3) Book Chapters

(1) Dipak Mazumdar: Modelling of secondary steel making processes, in " Secondary steelmaking " by A. Ghosh, CRC Press, 2000, pp.199-217.

(4) Review Articles

(1) Dipak Mazumdar and R.I.L. Guthrie: The physical and mathematical modelling of gas stirred ladle systems, ISIJ International, Vol.35(1),1995, pp.1-20.

(2) Dipak Mazumdar and Roderick I.L. Guthrie: The physical and mathematical modelling of continuous casting tundish systems, ISIJ International, Vol. 39(6), 1999, pp.525-548

(3) Dipak Mazumdar and J.W. Evans: Macroscopic models for gas stirred ladles: a Review ISIJ International, Vol. 44, 2004, pp.447-461.

(4) Dipak Mazumdar: " Review, analysis and modelling of continuous casting tundish systems", Steel Research International, Volume 90(4),2019, pp.1-14.

(5) Subham Ranjan, Dipak Mazumdar, Indra Nath Chakraborty, Saumen Sinha and Raja Sarkar: Review and analysis of metallurgical processes in blast furnace main trough and trough performances, Trans. IIM, Vol.75, 2022, pp. 589-611.

(6) Dipak Mazumdar: Progress on half a century of process modelling research in steelmaking: a review, CSIT Transactions on ICT, July 2024, pp.1-13.

(5) Feature Articles

(1) D. Mazumdar: The role of modelling in steelmaking Metal News, Indian Institute of Metals, Vol. 1&2, pp. 16-20 and 5-11, 2004.

- (2) Dipak Mazumdar: Industry-research-academia synergy: An overview of industry aided collaborative research in steelmaking at IIT Kanpur, Metal News, 1, 2012, pp. 14-20.
- (3) Dipak Mazumdar, Prince K. Singh, Rishikesh Mishra and Suvam Mukherjee: " Enhancing ladle shroud performance during industrial steel teeming practices", Journal of Indian Refractory Makers Association (IRMA), Vol.3, 2018, pp. 67-75.
- (4) D. Mazumdar: "Shrouded, ladle to tundish transfer practices for better product quality and steel plant performance, IIM Metal News, Vol.22, 2019, No. 9, pp. 16-21.
- (5) D. Mazumdar: "Special steels and the competitiveness of the Indian special steel sector". Metal news, Indian Institute of Metals, Vol. 4 and 5, 2020, pp 9-21.

(6) Letters and Discussion

- (1) Dipak Mazumdar and R.I.L. Guthrie: "Considerations concerning the numerical computation of mixing times in steelmaking ladles", ISIJ International, Vol.33(4), 1993, pp.513-516.
- (2) Dipak Mazumdar and R.I.L. Guthrie: "A note on the determination of mixing times in gas stirred ladle systems", ISIJ International, Vol.35(2),1995, pp.220-222.
- (3) Dipak Mazumdar and R.I.L. Guthrie: Discussion on "Mixing time and fluid flow phenomena in liquids of varying kinematic viscosities agitated by bottom gas injection", Metallurgical and Materials Transactions, Vol.30B, 1999, pp.349-351.
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PRESENTATIONS: SPECIAL AND MEMORIAL LECTURES:

1.**G.D. Birla Gold Medal lecture (2009)**, The Indian Institute of Metals, Kolkata, India, November 14th, 2009.

Title: “The knowledge based foundation of steelmaking and application in steel melt shop”.

2. **4th Annual COEST Steel Colloquium lecture (2016)**, Indian Institute of Technology, Mumbai.

Title: “Engineering in Steelmaking”.

3. **8th CNR Rao Distinguished lecture (2017)**, Indian Institute of Technology, Kanpur.

Title: “Steelmaking: Challenges and opportunities”.

4.**Invited guest lecture on Vision of Metallurgy, Beijing, China (2019).**

Title: “On shaping future ferrous metallurgy education: A perspective of an educationist”

5. **Inaugural Prof. Somnath Mishra memorial Lecture, NIT Rourkela (2023).**

Title: “Challenges in the production of clean steel: Argon inertization of teeming circuitry in continuous casting and its engineering towards improved plant performance”.

MAJOR INDUSTRIAL COLLABORATORS (2001-2024)

Integrated steel plants	Special steel plants	Refractory industries	Ferro-alloy industries
1. Ispat Industries, Dolvi 2. Jindal South West Steels Limited (JSW), Dolvi and Toranagallu 3. Jindal Steel and Power Limited (JSPL), Raigarh 4. Rashtriya Ispat Nigam Limited (RINL), Vishakhapatnam	1. Hospet Steels Limited, Ginigera, Karnataka 2. Mahindra Sanyo Special Steels Limited, Khopoli 3. Vardhman Special Steels Limited, Ludhiana 4. Sunflag iron and Steel Limited, Nagpur	1. Hi-Tech Refractories, Jamshedpur 2. Calderys India Refractories, Nagpur 3. Dalmia OCL Ltd, Rajgangpur, Odhisa	1. Chandrapura Ferroalloy Plant (SAIL), Chandrapura Maharashtra