

PUBLICATIONS & PRESENTATIONS

JOURNAL PUBLICATIONS

1. **S. Ranjan** and D. Mazumdar, “Mathematical and Experimental Investigation of Hot Metal Flow in a Blast furnace Trough”, *Steel Research International*, **2026**, 97 (7), 3810-3826. [\[DOI\]](#)
2. **S. Ranjan**, D. Mazumdar, I.N. Chakraborty, S. Sinha, and R. Sarkar, “Statistical Analysis and Prediction of Al₂O₃-SiC-C Based Blast Furnace Trough Refractory Wear Rate”, *Ironmaking & Steelmaking*, **2025**, 10, 1408-1420. [\[DOI\]](#)
3. D. Mazumdar, R. Mishra, **S. Ranjan**, and K. Avatar, “Discussion on "Optimization of Multiphase Flow and Initial Solidification Behaviours in a Stainless Steel Mold by SEN Design"", *Metallurgical and Materials Transactions B*, **2025**, 56, 3278-3281. [\[DOI\]](#)
4. **S. Ranjan** and D. Mazumdar, “Role of Gas Aspiration Through Ladle Shroud and Influence on Tundish Hydrodynamic Performances: A Physical and Mathematical Modelling Study”, *Steel Research International*, **2024**, 95 (7), 2300709. [\[DOI\]](#)
5. **S. Ranjan**, S. Mukherjee, and D. Mazumdar, “Mathematical and Physical Modeling of Inertization and Control of Tundish Atmosphere During Continuous Casting of Steel”, *Transactions of Indian Institute of Metals*, **2023**, 76 (3), 837-847. [\[DOI\]](#)
6. **S. Ranjan**, S. Mukherjee, A. Agnihotri, and D. Mazumdar, “Physical Modelling of Nitrogen Variation in Continuously Cast Blooms Resulting from Atmospheric Exposure of Steel in Tundish during Initial Stages of Teeming”, *ISIJ International*, **2022**, 62 (3), 609-612. [\[DOI\]](#)
7. **S. Ranjan**, D. Mazumdar, I.N. Chakraborty, S. Sinha, and R. Sarkar, “Review and Analysis of Metallurgical Processes in Blast Furnace Main Trough and Trough Performances”, *Transactions of Indian Institute of Metals*, **2022**, 75 (3), 589-611. [\[DOI\]](#)

CONFERENCE PUBLICATIONS

1. D. Nama, **S. Ranjan**, M. Ishfaq, A. Das, and R. Sarkar, “Adapting the Flash Ironmaking Technology for Direct Reduction of Iron Ore Fines- Results from Preliminary Studies at IIT Kanpur” in STIS-V, IISc Bangalore, India, 2025, pp. 189-194.
2. P.K. Singh, **S. Ranjan**, and D. Mazumdar, “Gas-Liquid Flows in Ladle Shroud and their Impact on Tundish Process Performance and Steel Quality”, *Advanced High Strength Steel*, ed. by T K Roy et al., Springer, 2017, pp. 149-158. [\[DOI\]](#)

CONFERENCE PRESENTATIONS

1. **S. Ranjan**, "Impact of Two-phase Gas-liquid Flows in Ladle Shroud on Tundish Hydrodynamic Performance: A Computational and Experimental Investigation", 2026 Spring Conference of the Korean Institute of Metals and Materials, Jeju Island, Korea, April 28-30.

2. **S. Ranjan**, S. Mukherjee, and D. Mazumdar, "Steel Contamination And Its Prevention During Initial Teeming Stage In A Continuous Casting Tundish: A Mathematical And Physical Modeling Study" ICS 2025, Seoul, Korea, July 2-5.
3. **S. Ranjan** and D. Mazumdar, "Gas Aspiration in Ladle Shroud and Its Impact on Tundish Process Performance: A Physical and Mathematical Modeling Study" IIM-ATM 2024, GKVK, Bengaluru, Nov. 22-24.
4. **S. Ranjan** and D. Mazumdar, "A Macroscopic Model for Prediction of Refractory Wear in Blast Furnace Main Trough" AISTech 2022, Pittsburgh, USA.
5. **S. Ranjan** and D. Mazumdar, "Modelling of Metallurgical Processes in a Blast Furnace Trough", Asia Steel 2021, Gyeongju, South Korea.