

PROFORMA FOR BIO-DATA OF THE PRICIPAL INVESTIGATOR (PI) (to be uploaded)

1. **Name and address for correspondence: Dr. Soumitra Kumar Dinda, Office room No MS201, Department of Metallurgical and Materials Engineering, National Institute of Technology Rourkela, Sector 1, Odisha, India, Pin-769008.**
2. **Designation: Assistant Professor**
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5. **Institution: National Institute of Technology Rourkela**
6. **Date of Birth: 2nd April 1988**
7. **Gender (M/F/T): MALE**
8. **Category (Gen/SC/ST/OBC): Gen**
9. **Whether differently abled (Yes/No): No**
10. **Specialization (Area of interest, up to 5): Welding Metallurgy, Optimization and Machine Learning, Process Metallurgy, Computational Fluid Dynamics, Materials Characterization**

11. Academic Qualification (Undergraduate Onwards)

Sl. No	Degree	Year	Branch/Discipline	University/Institution	% Marks or Grade
1.	Bachelor of Engineering (B.E.)	2010	Metallurgical and Materials Engineering	Jadavpur University	67.12%
2.	Master of Technology (M. Tech.)	2013	Metallurgical and Materials Engineering	IIT Kharagpur	86.5%
3.	Doctor of Philosophy (Ph.D.)	2019	Metallurgical and Materials Engineering	IIT Kharagpur in collaboration with WMG, University of Warwick, UK	-
4.	Post-Doctoral Research	2023	Materials Science and Engineering	University of Toronto, Canada	-

12. Ph.D. Thesis details.

Title: Dissimilar joining of iron-based 7% Al-alloy to mild steel and dual-phase steel (DP600) to 5754 aluminium alloy joints using electron beam welding

Field/domain: Welding, Characterization, Process Optimization

Department: Metallurgical and Materials Engineering

University: IIT Kharagpur

Supervisors: Prof. Gour Gopal Roy (IIT Kharagpur, India) and Prof. Prakash Srirangam (WMG, University of Warwick, UK)

Year of award: 2019

13. Work experience (in chronological order – Last 5):

Sl. No.	Designation	Name of the Institute/Organization	From Month-year	To Month-Year	Responsibility
1.	Assistant Professor	National Institute of Technology Rourkela	01.05.2023	30.04.2053	Teaching and Research

14. Professional Recognition/ Award/ Prize/ Certificate/Fellowship received by the PI. (top 10):

Sl.No.	Name of Award	Awarding Agency	Year
1.	IIT Kharagpur SGR International Research Scholar Support Program	IIT Kharagpur, India	2017
2.	MITACS (Mathematics of Information Technology and Complex Systems)	University of Toronto, Canada	June 2020-Nov. 2020
3.	UKIERI (EP/1002456/1)	UK-India Collaborative Project (3 times)	2015, 2016, 2017
4.	Bursary award during visit in WMG research internship	WMG, University of Warwick, UK (3 times)	2015, 2016, 2017
5.	Ph.D. Institute MHRD Fellowship	MHRD, Govt. of India	January 2015-Nov. 2019
6.	M.Tech. Institute MHRD Fellowship	MHRD, Govt. of India	August 2011-May 2013

15. Publications (List of papers published in SCI Journals, in year wise descending order). (up to 25 in last 15 years.)

Sl. No.	Author(s)	Full title	Name of the Journal	Volume	Year	Page (from-to)
1.	Soumitra Kr. Dinda, Gour Gopal Roy , Prakash Srirangam	Synchrotron diffraction and TEM characterization of intermetallics formation in EB-welded DP steel to Al alloy dissimilar joints	Vacuum	216	2023	112626
2.	Debasish Das, Soumitra Kr. Dinda, Amit Kumar Das, Dilip Kumar Pratihari, Gour Gopal Roy	Study of micro-porosity in electron beam butt welding	The International Journal of Advanced Manufacturing technology	121	2022	4583-4600
3.	Amiy Srivastava, Soumitra Kr. Dinda, Ali Asgarian, Joydeep Sengupta, Kinnor Chattopadhyay	Bubble Size Measurement in a Continuous Casting Mold Using Physical Modeling and Shadowgraphy	Metallurgical and Materials Transactions B	53	2022	2209-2226
4.	Amiy Srivastava, Ruibin Wang, Soumitra Kr. Dinda, Kinnor Chattopadhyay	Ensemble prediction of mean bubble size in a continuous casting mold using data driven modeling techniques	Machine Learning with Applications	6	2021	100180

5.	Soumitra Kr. Dinda, Debasish Das, Anand Mohan, Prakash Srirangam, Gour Gopal Roy	Effect of Beam Oscillation on Electron Beam Butt Welded Dual-Phase (DP600) Steel to 5754 Aluminum Alloy Joints	Metallurgical and Materials Transactions A	52	2021	1723-1731
6.	Soumitra Kr. Dinda, Kinnor Chattopadhyay	Numerical Modeling of Volatile Organic Compounds (VOC) Emissions during Preheating of Magnesite-Carbon Bricks in a Basic Oxygen Furnace	Metals	10	2020	1-13
7.	Soumitra Kr. Dinda, Jyotirmaya Kar, Gour Gopal Roy, Winfried Kockelmann, Prakash Srirangam	Texture mapping in electron beam welded dissimilar copper-stainless steel joints by neutron diffraction	Vacuum	181	2020	109668
8	Ashutosh Sahu, Ram Sajeevan Maurya, Soumitra Kr. Dinda, Tapas Laha	Phase Evolution-Dependent Nanomechanical Properties of $Al_{86}Ni_8Y_6$ and $Al_{86}Ni_6Y_{4.5}Co_2La_{1.5}$ Spark Plasma-Sintered Bulk Amorphous Composites	Metallurgical and Materials Transactions A	51	2020	5110-5119
9	Soumitra Kr. Dinda, Winfried Kockelmann, Gour Gopal Roy, Prakash Srirangam	Neutron diffraction bulk texture study with impact property correlation of electron beam welded dissimilar Fe-7%Al alloy to steel joints	The International Journal of Advanced Manufacturing Technology	108	2020	1499-1508
10	Soumitra Kr. Dinda, Jyotirmaya kar, Subhdeep Jana, Gour Gopal Roy, Prakash Srirangam	Effect of beam oscillation on porosity and intermetallics of electron beam welded DP600-steel to Al 5754-alloy	Journal of Materials Processing Technology	265	2019	191-200
11	Bharath Bandi, Soumitra Kr. Dinda, Jyotirmaya Kar, Gour Gopal Roy, Prakash Srirangam	Effect of weld parameters on porosity formation in electron beam welded Zircaloy-4 joints: X-ray tomography study	Vacuum	158	2018	172-179
12	Jyotirmaya Kar, Soumitra Kr. Dinda, Gour Gopal Roy, Sanat Kumar Roy, Prakash Srirangam	X-ray tomography study on porosity in electron beam welded dissimilar copper-304SS joints	Vacuum	149	2018	200-206

13	Soumitra Kr. Dinda, Md. Basiruddin Sk, Gour Gopal Roy, Prakash Srirangam	Microstructure and mechanical properties of electron beam welded dissimilar steel to Fe–Al alloy joints	Materials Science and Engineering: A	677	2016	182-192
14	Soumitra Kr. Dinda, Jason M. Warnett, Mark A. Williams, Gour Gopal Roy, Prakash Srirangam	3D imaging and quantification of porosity in electron beam welded dissimilar steel to Fe-Al alloy joints by X-ray tomography	Materials & Design	96	2016	224-231

16. Detail of patents. (up to 10):

Sl.No.	Patent Title	Name of Applicant(s)	Patent No.	Award Date	Agency/Country	Status
1.						
2.						

17. Books/Reports/Chapters/General articles etc. (Top 10)

Sl.No	Title	Author's Name	Publisher	Year of Publication
1.	Sensor Instrumentation and Advanced Imaging of the Full-Scale Physical Twin Mold for Digital Data Generation During Continuous Casting	Jackie Leung, Soumitra Kumar Dinda, Donghui Li, Joydeep Sengupta, Markus Bussmann	AISTech 2023 — Proceedings of the Iron & Steel Technology Conference	2023
2.	Implementing Dimensionality Reduction for Fundamental Assisted Analytics for End of Blow Chemistry Prediction in an LD Converter (FAA4LD)	Soumitra Kumar Dinda, Ruibin Wang, Itishree Mohanty, Mohanty Gupta, Tapas Kumar Roy	AISTech 2023 — Proceedings of the Iron & Steel Technology Conference	2023
3.	Physical and Mathematical Modeling of Residence Time Distribution in a Twin-Strand Slab Caster Tundish	Soumitra Kumar Dinda, Donghui Li, Fernando Guerra, Chad Cathcart, Mansoor Barati	AISTech 2023 — Proceedings of the Iron & Steel Technology Conference	2023
4.	Bubble Size Determination in a Half-Scale Curved Water Model Mold for Various Casting Conditions Using Imaging and Machine Learning	Soumitra Kumar Dinda, Donghui Li, Fernando Guerra, Chad Cathcart, Mansoor Barati	AISTech 2023 — Proceedings of the Iron & Steel Technology Conference	2023
5.	A Comparison Study on the Characterization of Bubbles Formed in a Ladle and a Continuous Casting Mold During Gas Injection Using Advanced Imaging Techniques	Amiy Srivastava, Soumitra Kumar Dinda, Kinnor Chattopadhyay, Joydeep Sengupta	AISTech 2021 — Proceedings of the Iron & Steel Technology Conference	2021
6.	Gas Bubble Digital Data Generation by Image Analysis Using Reduced-Scale Water Modeling of a Slab Continuous Caster Mold	Soumitra Kumar Dinda, Amiy Srivastava, Kinnor Chattopadhyay, Joydeep Sengupta	AISTech 2021 — Proceedings of the Iron & Steel Technology Conference	2021
7.	X-ray Radiography Study on Defect Analysis of Electron Beam Welded	Soumitra Kumar Dinda, Prakash Srirangam, Gour	TMS 2021 150th Annual Meeting & Exhibition	2021

	Plain C-Steel and Fe-7% Al Alloy Joints	Gopal Roy	Supplemental Proceedings	
8.	Defects comparison between single and double-sided electron beam welded dissimilar DP600 steel to 5754 Al alloy joints: X-ray tomography study	Soumitra Kumar Dinda, Prakash Srirangam, Gour Gopal Roy	TMS 2020 149th Annual Meeting & Exhibition Supplemental Proceedings	2020
9.	Effects of Beam Oscillation on Porosity and Intermetallic Compounds Formation of Electron Beam Welded DP600 Steel to Al-5754 Alloy Joints	Soumitra Kumar Dinda, Prakash Srirangam, Gour Gopal Roy	TMS 2019 148th Annual Meeting & Exhibition Supplemental Proceedings	2019
10.	Electron Beam Welding of Different Steel to Al-Alloys	Soumitra Kumar Dinda, Prakash Srirangam, Gour Gopal Roy	Lambert Academic Publishing	2020

18. List of Currently Operated Sponsored Projects as PI (Last 10)

Sl.No.	Title	Sponsor	Amount	From Date (Month-Year)	To Date (Month-Year)	Major Outcome
1.						
2.						
3.						
4.						

19. List of Completed Sponsored Projects as PI. (top 10):

Sl. No.	Title	Sponsor	Amount	From Date (Month-Year)	To Date (Month-Year)	Outcome
1.						
2.						
3.						
4.						
5.						

20. List of Technology Developed/Demonstrated:

Sl.No.	Title	Year	Institution	Brief Detail	References
1.					
2.					
3.					
4.					
5.					

21. Brief note on intended technology development (within 200 words) covering Area, Scope, Level of already achieved success, gap analysis, competence (of PI), facility available and expected outcome.

Solutions and technologies will be developed from this research will be implemented for manufacturing industries, for example, (i) Digital Twin framework development for efficient in-process monitoring will accelerate the deployment of the welding processes for multiple product variants, (ii) Weld quality detection and remedy process will be quick for instant decision making, (iii) Generating data-sets from DT to generate the

Artificial Intelligence code to optimize the process parameters near real time, (iv) next plan to approach different manufacturing sectors for the implementation of the combination of DT & AI in practical applications.

22. Referees (*up to 3*)

Name	Designation	Organization	Email id	Phone
Gour Gopal Roy	Professor	Indian Institute of Technology Kharagpur	ggroy@metal.iitkgp.ac.in	T: +91 (0) 94347- 43069 T: +91 (0) 73845- 39403
Pravash Chandra Chakraborti	Professor	Jadavpur University	pcchakraborti85@gmail.com	T: +91 (0) 33-2457-2178 T: +91 (0) 98302- 36451