Dr. Sourav Ganguly, PhD
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BIO-SKETCH

Dr. Sourav Ganguly is presently working as a Scientist in the Advanced Materials Technology (AMT) Department, CSIR-Institute of Minerals & Materials Technology (CSIR-IMMT) Bhubaneswar-751013, Odisha, India. Before joining CSIR-IMMT, he worked as an Assistant Professor for 1 year in the Mechanical Engineering Department of C.V. Raman Global University, Bhubaneswar till January 2021. He has obtained his Bachelors of Technology (B.Tech) from the Department of Mechanical Engineering, Veer Surendra Sai University of Technology, Burla, Odisha in the year 2013; and Ph.D. Degree from the Department of Metallurgical and Materials Engineering, National Institute of technology (NIT) Rourkela in the year 2020. He has 22 research publications in peer-reviewed international SCI journals.

Major research areas are: Magnesium/Aluminum alloys and composites, material fabrication, material characterization (SEM/FESEM, XRD, 3D profilometry, XPS etc), mechanical studies, and corrosion behaviour of materials for industrial and marine applications.

EDUCATION

2021	Ph.D in Metallurgical and Materials Engineering, National Institute of Technology Rourkela, Rourkela, Odisha, India
2013	B.Tech in Mechanical Engineering, Veer Surendra Sai University of Technology Burla, Sambalpur, Odisha, India

KEY APPOINTMENTS

Mar 2021 to present	Scientist, Advanced Materials Technology Department, CSIR-Institute of Minerals & Materials Technology, Bhubaneswar, Odisha, India
Jan 2020 to Jan 2021	Assistant Professor, Department of Mechanical Engineering, C. V. Raman Global University, Bhubaneswar, Odisha, India

MAJOR AWARDS/HONOURS/RECOGNITIONS

Dec 2023	2nd prize in Class 1 and 3rd prize in Class 2 of International Metallographic contest held by ASM International, USA
Sept 2022	Best oral presentation award in the "Materials and Composites" session at CORCON 2022 international conference organized by AMPP India Chapter (formerly NACE International).

Dec 2021 Best Oral presentation award in Session 3D at ICPCM 2021 conference at NIT Rourkela.

PUBLICATIONS AND PRESENTATIONS

Publications

1. A.K. Nanda, P. Kumar, P. Poddar, J. Sivasubramanian, A. Basu, G. Gupta, S.S. Singh, M. Gupta, **S. Ganguly**, Influence of Sn and Al contents on the microstructure evolution and mechanical performance of stir-cast Mg-3.0Al-0.5Si alloy, **Journal of Materials Science** 60 (2025) 9758–9790. https://doi.org/10.1007/s10853-025-10975-7
2. P.K. Rout, **S. Ganguly**, S. Roy, D.K. Rathore, Impact of Zn/Sn variations on the microstructure, mechanical properties, and biocorrosion of T4-Treated Mg-0.5Ca-Zn-(Sn) alloys for orthopaedic implants, **Materials Chemistry and Physics** 340 (2025) 130834. https://doi.org/10.1016/j.matchemphys.2025.130834.
3. S.K. Ghadei, J. Kanungo, **S. Ganguly**, K.J. Sankaran, R. Sakthivel, Cactus-inspired bio-derived superhydrophobic anti-corrosive hybrid coating: A sustainable fluorine/silane-free approach for multifunctional oil-water separation, **Progress in Organic Coatings** 201 (2025) 109144. https://doi.org/10.1016/j.porgcoat.2025.109144.
4. T.K. Bhanj, **S. Ganguly,** A.M. Mathew, D.K. Pattanayak, M. Debata, T.K. Sahoo, N. Kumar, S.R. Das, N. Chawake, A. Panigrahi, Investigations into mechanical and corrosion behavior of Ti6Al4V scaffolds prepared using space holder technique, **Emergent Mater. (2025).** https://doi.org/10.1007/s42247-024-00984-8.
5. P.K. Rout, **S. Ganguly**, D.K. Rathore, S. Roy, Degradation Kinetics of As-Cast and Solution-Treated (T4) Magnesium-Based Alloys for Biodegradable Orthopedic Implants, **Metallurgical and Materials Transactions A** 55 (2024) 4928–4939. https://doi.org/10.1007/s11661-024-07597-0.
6. R. Gope, **S. Ganguly**, M.A. Kamde, A. Mandal, Evaluating the effect of Si and Mg addition on the corrosion performance of gravity-cast Al-12Ce alloys in NaCl solutions, **Journal of Alloys and Compounds** 1010 (2025) 177145. https://doi.org/10.1016/j.jallcom.2024.177145
7. **S. Ganguly**, R. Gope, M.A. Kamde, S. Pahari, P.C. Padhi, Corrosion performance of naval brass in a simulated ocean water environment under different aqueous conditions, **Materials Chemistry and Physics** 326 (2024) 129814. https://doi.org/10.1016/j.matchemphys.2024.129814
8. G. Gupta, R. Pandey, S. Mangam, **S. Ganguly**, J. Jain, S. S. Singh, Development and Characterization of Novel Mg-6Zn-0.6Si-xSn Alloys with Varying Sn Addition, **Materials Letters** 369 (2024) 136766. https://doi.org/10.1016/j.matlet.2024.136766
9. Meeta Ashok Kamde, Yogendra Mahton, Yogesh Singh, Santosh Kumar Sahoo, **Sourav Ganguly**, N Surya Prakash, Mangal Roy, Vidhyadhar Mishra, Suman Sarkar, Partha Saha1, Correlation of microstructure and corrosion behavior of squeeze-cast Mg-4.0Y-4.0Zn-0.5Zr-0.2Ca (wt%) alloys constituting W and LPSO secondary phases, **Metals and Materials International**, (2024), https://doi.org/10.1007/s12540-024-01712-x
10. R. Gope, A. Mandal, **S. Ganguly**, Enhanced impression creep performance of gravity and suction cast Al-12Ce alloy with Si and Mg additions, **Materials Today Communications** 38 (2024) 108511. https://doi.org/10.1016/j.mtcomm.2024.108511.

11. R. Gope, D.K. Saini, **S. Ganguly**, A. Mandal, Investigating the load and temperature-dependent dry sliding wear performance of Al–12Ce alloys with Si and Mg additions, **Wear** 544–545 (2024) 205315. https://doi.org/10.1016/j.wear.2024.205315.
12. **S. Ganguly**, A.K. Mondal, Improved damping behavior of squeeze-cast AZ91-Ca-Sb magnesium alloy with nano-SiC particles additions, **Materials Today Communications** 37 (2023) 106904. https://doi.org/10.1016/j.mtcomm.2023.106904.
13. P.K. Rout, S. Roy, **S. Ganguly**, D.K. Rathore, A review on properties of magnesium-based alloys for biomedical applications, **Biomedical Physics & Engineering Express** 8 (2022) 042002.
14. R. Gope, S. Mondol, **S. Ganguly**, A. Mandal, Microstructure and mechanical properties of suction-cast aluminium–cerium alloys, **Materials Science and Technology** (2023) 1–18. https://doi.org/10.1080/02670836.2023.2228056.
15. **S. Ganguly**, A.K. Chaubey, R. Gope, A. Kushwaha, A. Basu, M. Gupta, Enhanced corrosion performance of ultrasonically shot peened and graphene nanoparticles reinforced squeeze-cast AZ91 magnesium alloy, **Journal of Alloys and Compounds** 966 (2023) 171203. https://doi.org/10.1016/j.jallcom.2023.171203.
16. **S. Ganguly**, A. Chaubey, R. Sahoo, A. Kushwaha, A. Basu, J. Majhi, M. Gupta, Influence of ultrasonic shot peening on the microstructure and impression creep performance of squeeze-cast AZ91 alloy reinforced with graphene nanoplatelets, **Journal of Alloys and Compounds** 938 (2023) 168640. https://doi.org/10.1016/j.jallcom.2022.168640.
17. J. Majhi, **S. Ganguly**, A. Basu, A.K. Mondal, Improved corrosion response of squeeze-cast AZ91 magnesium alloy with calcium and bismuth additions, **Journal of Alloys and Compounds** 873 (2021) 159600. https://doi.org/10.1016/j.jallcom.2021.159600
18. **S. Ganguly**, S.T. Reddy, J. Majhi, P. Nasker, A.K. Mondal, Enhancing mechanical properties of squeeze-cast AZ91 magnesium alloy by combined additions of Sb and SiC nanoparticles, **Materials Science and Engineering: A** 799 (2020) 140341. https://doi.org/10.1016/j.msea.2020.140341.
19. **S. Ganguly**, S. Sarkar, A.K. Mondal, Enhancement of tensile properties of AZ91–Ca–Sb magnesium alloy with SiC nanoparticles additions, **Metals and Materials International** (2020). https://doi.org/10.1007/s12540-020-00744-3.
20. **S. Ganguly**, A.K. Mondal, S. Sarkar, A. Basu, S. Kumar, C. Blawert, Improved corrosion response of squeeze-cast SiC nanoparticles reinforced AZ91-2.0Ca-0.3Sb alloy, **Corrosion Science** 166 (2020) 108444. https://doi.org/10.1016/j.corsci.2020.108444.
21. **S. Ganguly**, S. Sarkar, M. Masanta, A.K. Mondal, Effect of SiC nanoparticles on the wear behaviour of squeeze-cast AZ91–2.0Ca–0.3Sb alloy, **Materials Science and Technology** 35 (2019) 1678–1689. https://doi.org/10.1080/02670836.2019.1639384.
22. **S. Ganguly**, A.K. Mondal, Influence of SiC nanoparticles addition on microstructure and creep behavior of squeeze-cast AZ91-Ca-Sb magnesium alloy, **Materials Science and Engineering A** 718 (2018). https://doi.org/10.1016/j.msea.2018.01.131.

Conference Presentations

- ✓ Represented CSIR-IMMT at the MET+HTS 2022 conference organized by ASM International India Chapter (November 2–4, 2022) as an exhibitor.

- ✓ Represented CSIR-IMMT and CRTDH at the DSIR-CRTDH Conclave held at IITR Lucknow (November 17–18, 2022) as an exhibitor.
- ✓ Presented a technical paper at the I3C Conference, CSIR-NML, Jamshedpur, and visited TATA Steel for industrial interaction.
- ✓ Presented a paper at the International Conference on Non-ferrous Metals (ICNFM), Ranchi (July 2023).
- ✓ Participated in the 2nd CII National Corrosion Management Practices – Competition & Awards (March 5–6, 2025, virtual).
- ✓ Attended the Conference on Magnesium Casting Manufacturing Technology (Jan 22–23, 2025, Pune).
- ✓ Presented a technical paper at CORCON 2024, Chennai (Nov 20–23, 2024).

National/international training programmes organized

- **Organizing member** for a **one-day demonstration-cum-training programme** on improved brass/bell metal melting furnace for metalcraft artisans, held at CSIR-IMMT.
- **Organizing member** for a **one-day workshop on Silver Filigree** for Odisha artisans at the **MSME Head Office**, Cuttack (April 2022).
- **Convener** of a two-day workshop titled *"Advances in Corrosion Technology and Prevention"* (July 20–21, 2023).
- Organized a ***SERB-Accelerate Vigyan Vrittika Internship Program*** (Feb–March 2024), fostering early-career research training.
- ***Co-Convener*** of the ***28th International Conference on Non-ferrous Metals – 2024 (ICNFM-2024)***, jointly organized by CSIR-IMMT and Corporate Monitor.
- ***Convener*** of the ***Industry-Academia-Research Meet*** on non-ferrous industry prospects, held at CSIR-IMMT.
- **Member** of the exhibition team from CSIR-IMMT at **Exhibition cum Trade Fair under PM Viswakarma Scheme Organized by MSME-DFO**, Cuttack at Puri
- Organized as a **member** a **Workshop on Advances in Metal Craft Technology** @CSIR-IMMT on February 19, 2025

Projects

Sl.No	Title of Project	Participating Agencies	Your Role as defined
1.	Development of magnesium extraction technology and production of magnesium-based alloys for automobile applications.	CSIR Mission Mode Project "Mapping and Tapping of Critical Metals & Minerals")	PI
2.	Development of porous Ti-alloy scaffolds and their corrosion studies.	RDSF, CSIR	Co-PI

3.	Alternative alloys and environmental friendly fuel for Dokra art clusters.	CSIR Mission mode "Indigenous development and manufacturing of machines, devices and assembly lines".	Member
4.	Technology development for utilization of spent EAF graphite electrods to prepare high commercial value graphene products	Ministry of Steel (MOS), New Delhi, Government of India& Jindal Stainless.	Member
5.	Utilization of spent graphite electrodes for value addition & reuse in smelter	CSIR Mission Mode Project "Waste to Comprehensive solutions towards circular economy and sustainability"	Member
6.	Development of lightweight magnesium alloy-based nanocomposites for transmission housing application in automobiles	CSIR-IMMT (2021-2024)	PI (Completed)
7.	Training and skill internship (VRITIKA) on Corrosion and mechanical performance of different materials in simulated seawater conditions for naval application	CSIR-IMMT (2024)	PI (Completed)
8.	Revitalizing the traditional brass, bell-metal, and Dokra craft sector in Odisha through appropriate technological intervention	Directorate of Handicrafts and CSIR-IMMT (2025)	Member (Completed)

Invited lectures

- Delivered an **invited talk** at the *2nd International Conference on "Metallurgy & Materials Technology – Emerging Trends, Development & Applications (MatCorr)"*, New Delhi (June 29–30, 2021).
- Delivered an **invited online lecture** organized by ASM International Eastern India Raigarh Chapter and the Department of Metallurgical Engineering, OP Jindal University (August 27, 2022).
- Delivered a **Keynote lecture** at *ICAAMT 2024*, Chennai Institute of Technology (Dec 19–20, 2024).
- Delivered a **technical lecture** on "Mechanical Behavior of Materials" in the CSIR Skill Development Training Program on Powder Metallurgy (Aug 21–23, 2024, CSIR-IMMT).
- Delivered a **technical lecture** on "Corrosion Behavior of Al and Cu Alloys" to GETs of Hindalco Industries Ltd. (July 2024, CSIR-IMMT).

Dissertation/Intern/Ph.D students guided

- Ph.D students: 4 nos, As a supervisor: 2 (ongoing) As a co-supervisor: 1 ongoing, 1 defended his thesis
- Summer intern trained: 6 nos
- Under SERB Vritika scheme: 5 nos of interns were trained
- Dissertation student: 2 completed, 1 ongoing