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Professor, Metallurgy and Materials Engineering Department, and
Chair Professor at the Chirasree Centre for Sustainable Infrastructure
Development (CCSID)

Indian Institute of Engineering Science and Technology, Government of
India, Shibpur, Howrah-711103, West Bengal, India

Website: <https://www.iiests.ac.in/IEST/Faculty/metal-mghosh>

Google Scholar Profile:

<https://scholar.google.co.in/citations?user=1asrimkAAAAJ&hl=en>

Vidwan Profile: <https://vidwan.inflibnet.ac.in/profile/93315>

Scopus Profile: <https://www.scopus.com/authid/detail.uri?authorId=57203183944>

Orcid Profile: <https://orcid.org/0000-0002-0725-0358>

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Profile Summary

Research Areas:	Thermo-mechanical simulation of Al Alloys Crystallographic Texture High Entropy Alloys Composite Materials
Research Profile Keywords:	Strengthening mechanisms Machine Learning Microstructure
Books Published as author:	One (1)
Book Published as editor:	One (1)
SCI journal Article Published:	104
Book Chapter :	32
Scopus indexed conference proceedings:	19
Doctoral Students Supervised:	16 (including 3 ongoing)
Master Students (M. Tech) Supervised:	(Twenty-Six) 26
Sponsor Research Projects:	Seven (7)
Consultancy Research Project:	Three (2)
Research/Teaching Experience:	More than Twenty-Eight (28) years

Address for Communication

Office

Department of Metallurgy and Materials Engineering
Indian Institute of Engineering Science and
Technology, Shibpur
B. Garden, Howrah – 711103, West Bengal, India
Phone: +91 - 33 - 26684561/62/63 Ext. 248
Mobile: + +91 98748 65163

Residence

T3,12D, Modello Highspre,
266-Kumrakhali, Rajpur, Sonarpur,
Kamalgazi, Narendrapur-700103
24-Pargana (south), West Bengal, India

Education

PhD	Materials Science and Engineering, Delft University of Technology (TU Delft), The Netherlands (06.04.2011), Topic: Microstructurally Controlled Mechanical Properties of Al–Mg–Si Alloys for Warm Forming Applications
M. Tech	Metallurgical and Materials Engineering, Indian Institute of Technology, Kharagpur, (1996 - 1998) <CGPA: 8.54>
B. E.	Metallurgical Engineering, Jadavpur University, India (1992-1996)

Work Experience

Visiting Scientist	Department of Materials Science and Engineering, University of Michigan, Ann Arbor, USA. [06.01.2023 to 03.12.2023]
Professor	Department of Metallurgy and Materials Engineering Indian Institute of Engineering Science and Technology, Shibpur. [03.12.2023 to Present]
Chair Professor	Chair Professor at the Chirasree Centre for Sustainable Infrastructure Development (CCSID), IEST, Shibpur [15.07.2026]
Head of the Department	Department of Metallurgy and Materials Engineering Indian Institute of Engineering Science and Technology, Shibpur. [24.05.2019 – 12.06.2021]
Associate Professor	Department of Metallurgy and Materials Engineering Indian Institute of Engineering Science and Technology, Shibpur. [07.09.2011 – 02.12.2023]
Assistant Professor	Department of Metallurgy and Materials Engineering Bengal Engineering and Science University, Shibpur. [07.06.2008 – 06.09.2011]
Senior Lecturer	Department of Metallurgy and Materials Engineering Bengal Engineering and Science University, Shibpur. [07.09.2007 – 06.09.2008]
Lecturer	Department of Metallurgy, Bengal Engineering College (DU), Shibpur. [07.09.1998-06.09.2007]

Teaching Experience

Undergraduate	1. Non-Ferrous Metallurgy 2. Metallurgical Thermodynamics 3. Powder Metallurgy 4. Joining of Metals 5. Deformation behaviour of Materials
Postgraduate	1. Advanced Phase Transformation 2. Design and Selection of Materials 3. Advanced Thermodynamics

Research Experience

PhD	Thesis under Supervision: 16 (Completed-13, Ongoing-3)
M. Tech	Thesis Guided: 32
B. Tech	Thesis Guided: 63

Association with Indian Institute of Metals

I have a long association with the Indian Institute of Metals. The association began in 1993, when I became a student member of IIM during my undergraduate studies at Jadavpur University. I still remember my first event of IIM at the Tollygunge club, a lecture delivered by the famous Dr Placid Rodriguez. As the chapter secretary and chairman, I have organised over 25 conferences and workshops under the banner of IIM. Following, I state the year-wise association with IIM with different portfolios:

- **Convenor** : A.K. Seal Memorial Lecture Committee: 2022 to date
- **Chapter Chairman (Howrah Chapter):** 2017 – 2023
- **Chapter Secretary** : 2009 - 2017
- **Council member** : 2011 - 2011
- **Chapter Treasurer** : 2000 - 2003
- **Student member** : 1993 - 1998
- **Member of Examination committee:** 2021 - 2025
- **Member of AFRC** : 2024 - 2025

PhD Thesis Supervised or under Supervision

15. Mr. Subhabrata Chakraborty, enrolled in 2026

14. Rockey Kumar, Development of nano-scale oxide-dispersed high-entropy alloys for fuel cladding and structural components of nuclear reactors through additive manufacturing, enrolled in 2026

13. Athili Kaiho, Stir casting of magnesium-based alloys, Submitted in 2026

12. Pritam Mandal, Development of High Entropy Alloy and Oxide systems for thermal barrier coatings, Submitted in November 2025

11. Ajay Kumar Mahanta, Processing of Al-Cu-Li alloys by severe plastic deformation, Ongoing: Proposed Submission-October 2026.

10. Samjukta Sinha, Development of high-performance Aluminium alloys incorporating TWIN plasticity, Ongoing: Proposed Submission-November 2027

09. Uttam Murmu, Estimation of tribological properties and Thermomechanical response of CuTiB₂ MMCs, Awarded in 2025

08. Jaideep Adhikari, A study on cellulose/collagen based polymeric scaffold for skin and bone tissue engineering using electrospinning and 3D bioprinting, Awarded in 2024

07. Shilabati Hembram, Transition and Rare Earth Meta based Micro-Nano Sized Powder Coating by HVOF Technique for Wear and Corrosion resistance applications, Awarded in 2025.

06. Biplab Ghosh, Influence of microstructure and texture on similar and dissimilar Aluminium alloys joined by FSW and EBW, Awarded in 2024.

05. Samata Saha, Development of aluminium-based metal matrix composite with hybrid reinforcement processed through powder metallurgy route, Awarded 2022.

04. Kalyan Das, Texture evaluation and study of mechanical properties during Electron Beam

Welding for pure Niobium, *Awarded-2022*.

03. Partha Pratim Dey, On the phase evolution and physico-chemical characteristics of Al Mg-Si alloy coating by hot dipping on IF steel, *Awarded-2021*.

02. Dibyendu Dutta Majumder, Tailoring surface by immobilization of plant-derived bioactive molecules on Ti-based alloy for orthopaedic implant application, *Awarded-2020*.

01. Abhishek Ghosh, Influence of Ag and Sn on Microstructure and Texture in Al-Zn-Mg Cu Alloys. *Awarded-2020*.

Post-doctoral Supervision

1. **Mouparna Manna**, Senior Project Assistant under the Partnerships for Accelerated Innovation and Research (PAIR) scheme: 2026 to 2031

Publications

Journals:103

Book Chapters: 32

Book Written:01

Conference:19

Book Edited:01

Peer-Reviewed Journals

2026

103. **Investigation of Mechanical and Tribological Behaviour of SiC-and Carbon Nanotube-Reinforced Aluminium Matrix Hybrid Nanocomposites**

A Chatterjee, S Sinha, P Das, S Paul, A Ghosh, **M Ghosh**

Crystals

Published:2026, <https://doi.org/10.3390/cryst16060384>

104. **A strategy for microstructural and texture optimization in high-performance AA 2195 Al-Cu-Li alloy through cryogenic processing**

Ajay Kumar Mahanta, Soumyadeep Das, Abhishek Ghosh, Manojit Ghosh

Material Characterization

Published:2026, [10.1016/j.matchar.2026.116625](https://doi.org/10.1016/j.matchar.2026.116625)

105. **A Review on High Entropy Alloys as Metallic Biomaterials: Fabrication, Properties, Applications, Challenges, and Future Prospects**

Jaideep Adhikari, Prerona Saha, Pritam Mandal, Sudip Kumar Sinha, Asiful H Seikh, Jabair A Mohammed, **Manojit Ghosh**,

Biomedical Materials & Devices

Published:2026, <https://doi.org/10.1007/s44174-025-00314-4>

102. **The effect of B2 Phase on Dynamic Microstructural Evolution During Hot Deformation of an Al-Containing High-Entropy Superalloy,**

Arash Ghasemi, Ali Reza Eivani, Seyed Mahdi Abbasi, Abhishek Ghosh, Shailesh Kumar Singh, **Manojit Ghosh**, Hamid Reza Jafarian

Results in Engineering

Published: 2026, <https://doi.org/10.1016/j.rineng.2026.110856>

101. **Synergistic influence of processing temperature and TiB₂ content on the thermo-mechanical behaviour of copper matrix composites,**

Uttam Kumar Murmu, Srijan Yadav, Soumyadeep Sen, Kaushik Das, Shivam Trivedi,

Abhishek Ghosh, Snehanu Pal, **Manojit Ghosh**,
Materials Chemistry and Physics

Published:2026, <https://doi.org/10.1016/j.matchemphys.2026.132292>

100. Deformation Behaviour Study of Single Crystal BaPt₂ Compound Using Parameterized Embedded-Atom Method Potential—Part 1: Tensile and Creep Characteristics

S Mukhopadhyay, SK Dinda, SK Singh, **M Ghosh**, S Pal

Journal of Engineering Materials and Technology

Published:2026, <https://doi.org/10.1115/1.4070121>

99. Deformation Behaviour Study of Single Crystal BaPt₂ Compound Using Parameterized Embedded-Atom Method Potential: Part 2—Ratcheting Characteristics

S Mukhopadhyay, SK Dinda, SK Singh, **M Ghosh**, S Pal

Journal of Engineering Materials and Technology

Published:2026 (148 (2), 021003), <https://doi.org/10.1115/1.4070121>

98. Influence of Alloying Elements and Annealing Temperature on Lankford Constant of High Strength Dual Phase Steels Using Supervised Regression Models

A Pal, R Verma, P Mandal, S Sinha, P Das, S Pal, **M Ghosh**

Journal of The Institution of Engineers (India): Series D

Published:2026, DOI: [10.1007/s40033-026-00992-4](https://doi.org/10.1007/s40033-026-00992-4)

2025

97. Enhancing Wear Resistance and Mechanical Properties of TiB₂-Reinforced AZ91D Magnesium Alloys

K Athili, AK Birru, S Sinha, RS Buradagunta, PK Bannaravuri, **M Ghosh**

Journal of Materials Engineering and Performance

Published:2025, DOI: [10.1007/s11665-025-13020-5](https://doi.org/10.1007/s11665-025-13020-5) <Q2>

96. Machine learning for predicting high-temperature strength of austenitic stainless steels based on composition and deformation parameters,

A Ghasemi, AR Eivani, O Banapour Ghaffari, M Zakeri Nasrabadi, **M. Ghosh**

Journal of Materials Science

Published:2025 (60 (47), 24665-24683), DOI: [10.1007/s10853-025-11805-6](https://doi.org/10.1007/s10853-025-11805-6) <Q1>

95. Controlling Dynamic Recrystallization via Hot Compression: Defining the Optimal Processing Window for Stable, Isotropic Zn-1.2 Mg Bio-implants

M Moradi, AR Eivani, SH Seyedein, **M.Ghosh**, H Vafaenezhad

Results in Engineering

Published:2025 (108351,1), <https://doi.org/10.1016/j.rineng.2025.108351> <Q1>

94. Bilayer electrospun amine modified regenerated cellulose-collagen/functionalized bioactive glass-ceramic scaffold for potential bone tissue engineering applications

J Adhikari, S Dasgupta, P Das, S Dey, AD Rajora, A Barui, P Basak, **M. Ghosh**, Prosenjit Das

Biomaterials Advances

Published:2025, <https://doi.org/10.1016/j.bioadv.2025.214604>

93. Optimising the tensile properties of Al₁₀Co₂₅Cr₈Fe₁₅Ni₃₆Ti₆ high entropy superalloy

A Ghasemi, AR Eivani, SM Abbasi, **M Ghosh**, HR Jafarian

Journal of Alloys and Compounds

Published:2025 (1037, 182593), DOI: [10.1016/j.jallcom.2025.182593](https://doi.org/10.1016/j.jallcom.2025.182593) <Q1>

92. Influence of Reinforcement and Processing Temperature on the Microstructure and Texture Evolution of Cu–TiB₂ Composite Processed by Equal Channel Angular Pressing,

Uttam Kumar Murmu, Prerona Saha, Abhishek Ghosh, Srijan Yadav, B. Ravisankar, Asiful H. Seikh, Ibrahim A. Alnaser & **Manojit Ghosh**,

Metals and Materials International

Published:2025 (Volume 31, pages 3440–3454), <https://doi.org/10.1007/s12540-025-01944-5> <Q1>

91. Effects of TiB₂ Nanoparticles on the Microstructure and Mechanical Properties of AZ91D Magnesium Alloy Processed Through Stir Casting Technique

K Athili, AK Birru, **M Ghosh**, S Roy

Metal Science and Heat Treatment

- Published:2025 (67 (3), 236-243), [DOI: 10.1007/s11041-025-01153-2](https://doi.org/10.1007/s11041-025-01153-2)
- 90. Development of a next-generation high-strength Al–Zn–Mg–Cu alloy microalloyed with Ag and Sn through equal channel angular pressing**
A Ghosh, M Ghosh
Journal of Materials Science
Published:2025 (1-28), [DOI: 10.1007/s10853-025-11019-w](https://doi.org/10.1007/s10853-025-11019-w) <Q1>
- 89. Developing new high-entropy alloys with enhanced hardness using a hybrid machine learning approach: integrating interpretability and NSGA-II optimization**
Debsundar Dey, Anik Pal, Pranjal Biyani, Pritam Mandal, Snehashu Pal, Suchandan Das, Santanu Dey, **Manojit Ghosh**
Journal of Materials Science
Published:2025, [DOI:10.1007/s44174-025-00314-4](https://doi.org/10.1007/s44174-025-00314-4) <Q1>
- 88. Al-Co-Cr-Fe-Ni-Ti high entropy alloys: A review of microstructural and mechanical properties at elevated temperatures,**
Arash Ghasemi, Ali Reza Eivani, Seyed Mahdi Abbasi, Hamid Reza Jafarian, **Manojit Ghosh**, Seyed Hashem Mousavi Anijdan,
Journal of Alloys and Compounds,
Published:2025 (Volume 1010, 5, 178216), <https://doi.org/10.1016/j.jallcom.2024.178216> <Q1>
- 87. Optimising Properties of Cold Sprayed CuAlFeB Powder on EN AW 7075 Substrate for Corrosion and Wear Resistance Applications**
Shilabati Hembram, Naveen Manhar Chavan, Avishek Roy, S Kumar, Abhijit Majumdar, **Manojit Ghosh**
Journal of Materials Engineering and Performance
Published:2025, <https://doi.org/10.1007/s11665-025-10651-6> <Q2>
- 86. Investigation of the Role of Non-octahedral Slip Planes in Tensile Deformation Behaviour of Naturally Aged Aluminium 6061 Alloy**
Soumyadeep Sen, Abhishek Ghosh, Arkajit Ghosh, Gyan Shankar, AF Abd El-Rehim, **Manojit Ghosh**
Metals and Materials International
Published:2025, [DOI: 10.1007/s12540-024-01873-9](https://doi.org/10.1007/s12540-024-01873-9) <Q1>
- 85. Improved Machine Learning Framework for Prediction of Phase and Crystal Structure of High-Entropy Alloys**
Debsundar Dey, Suchandan Das, Anik Pal, Santanu Dey, Chandan Kumar Raul, Pritam Mandal, Arghya Chatterjee, Soumya Chatterjee, **Manojit Ghosh**
Journal of Alloys and Metallurgical Systems
Published:2025, <https://doi.org/10.1016/j.jalms.2024.100144> <Q2>

2024

- 84. Al-Co-Cr-Fe-Ni-Ti High Entropy Alloys: A Review of Microstructural and Mechanical Properties at Elevated Temperatures**
Arash Ghasemi, Ali Reza Eivani, Seyed Mahdi Abbasi, Hamid Reza Jafarian, **Manojit Ghosh**, Seyed Hashem Mousavi Anijdan
Journal of Alloys and Compounds
Published:2024, <https://doi.org/10.1016/j.jallcom.2024.178216> <Q1>
- 83. A voting-based ensemble classifier to predict phases and crystal structures of high entropy alloys through thermodynamic, electronic, and configurational parameters**
Pritam Mandal, Amitava Choudhury, Amitava Basu Mallick, **Manojit Ghosh**
Journal of Alloys and Metallurgical Systems (Elsevier)
Published:2024
<https://doi.org/10.1016/j.jalms.2024.100087> <Q2>
- 82. Utilizing machine learning algorithms to predict accuracy of the Index of Relative Tectonic Activity (IRTA), Dhansiri (North) River Basin in India and Bhutan**
Shayani Roy, Pritam Mandal, Amitava Chowdhury, M Abdullah-AL-Wadud, Ariyan H Seikh, Ayan H Seikh, **Manojit Ghosh**, Ananya Mukhopadhyay
IEEE Access

Published:2024 <https://doi.org/10.1109/ACCESS.2024.3394061>

81. Bilayer regenerated cellulose/quaternized chitosan-hyaluronic acid/collagen electrospun scaffold for potential wound healing applications,

Jaideep Adhikari and Shalini Dasgupta and Pratik Das and D.A. Gouripriya and Ananya Barui and Piyali Basak and **Manojit Ghosh** and Prosenjit Saha

International Journal of Biological Macromolecules

Published:2024 <https://doi.org/10.1016/j.ijbiomac.2024.129661>

80. Design and Analysis of Automotive Vehicle Components with Composite Materials Using ANSYS, Subhdeep Paul, Pallab Roy, Arpita Chatterjee, Pinjal Pandit, Rahul Mukherjee & Manojit Ghosh,

Journal of The Institution of Engineers (India): Series D

Published:2024, <https://doi.org/10.1007/s40033-023-00627-y> <Q2>

2023

79. A new insight into the phase stability in high entropy alloys

Shankha S. Basu and Parijat P. Jana and **Manojit Ghosh**

Materials Today Communications

Published:2023 (37, 107394) <https://doi.org/10.1016/j.mtcomm.2023.107394>

78. Modelling of thermal behaviour in Niobium during Electron Beam Welding

Varnit Jain, Kalyan Das, Antareep Chaudhuri, Mouparna Manna, Snehanu Pal, **Manojit Ghosh**

Materials Today Communications

Published:2023 (37, 107020) <https://doi.org/10.1016/j.mtcomm.2023.107020>

77. Establishing the Root Cause of a Failure in Condenser Tubes in a Power Plant

Soumyadeep Sen, Abbas Bahrami, **Manojit Ghosh**, Hesam Fallah-Arani, Mohsen Mahdizadeh

Journal of Failure Analysis and Prevention

Published:2023 (1-12) DOI: <https://doi.org/10.1007/s11668-023-01743-3>

76. Collagen-incorporated functionalized bacterial cellulose composite: a macromolecular approach for successful tissue engineering applications

Jaideep Adhikari, Shalini Dasgupta, Ananya Barui, **Manojit Ghosh**, Prosenjit Saha

Cellulose

Published:2023 (1-33) <https://doi.org/10.1007/s10570-023-05407-1>

75. In pursuit of a suitable machine learning algorithm for hardness prediction of aluminium Alloy

Suman Chhabri, Krishnendu Hazra, Amitava Choudhury, Arijit Sinha, **Manojit Ghosh**

Engineering Computations

Published:2023 <https://doi.org/10.1108/ec-04-2022-0221>

74. Heat checking as a failure mechanism of dies exposed to thermal cycles: a review

Pariya Solgi, Mojtaba Chenarani, Ali Reza Eivani, **Manojit Ghosh**, Vidyapati Kumar, Hamid Reza Jafarian

Journal of Materials Research and Technology

Published:2023 (26, 865-895) <https://doi.org/10.1016/j.jmrt.2023.07.170> <Q1>

73. Exploring Possibilities for Fabricating Cu–TiB₂ Composite Through Different Powder Metallurgy Routes

Uttam Kumar Murmu, Shrishty Sahu, Abhishek Ghosh, **Manojit Ghosh**

Journal of The Institution of Engineers (India): Series D

Published:2023 (104, 247-257), DOI: [10.1007/s40033-022-00369-3](https://doi.org/10.1007/s40033-022-00369-3) <Q2>

72. Microstructure and Mechanical Properties of Spark Plasma Sintered Nanocrystalline Boron-Doped AlCoFeMnNi High-Entropy Alloy Phase Stability

Sahar Pourmohammadi, Ali Mohammadnejad, Abbas Bahrami, Seyed Hashem Mousavi Anijdan, Nokeun Park, **Manojit Ghosh**

Metals

Published:2023 (13, 1025), DOI: [10.3390/met13061025](https://doi.org/10.3390/met13061025) <Q1>

71. Service life assessment of yttria stabilized zirconia (YSZ) based thermal barrier coating through wear behaviour

Pushpak Banerjee, Avinava Roy, Soumyadeep Sen, Arkajit Ghosh, Gourab Saha, Asiful H Seikh,

Ibrahim A Alnaser, **Manojit Ghosh**

Heliyon

Published:2023 <https://doi.org/10.1016/j.heliyon.2023.e16107> <Q1>

70. Stress relaxation cracking failure in heat exchanger connection pipes in a petrochemical plant

Ritesh Kumar Mallick, **Manojit Ghosh**, Abbas Bahrami, Vahid Esmaeili

Engineering Failure Analysis

Published:2023 (147, 107156), DOI: [10.1016/j.engfailanal.2023.107156](https://doi.org/10.1016/j.engfailanal.2023.107156)

69. Effect of Annealing on Microstructure and Mechanical Properties of Accumulative Roll Bonded Fe-24Ni-0.2 c Trip Steel

Hossein Mohammadi, Hamid Reza Jafarian, Soumyadeep Sen, **Manojit Ghosh**, Ali Reza Eivani
SSRN

Published:2023 <https://dx.doi.org/10.2139/ssrn.4215145>

68. Development of mechanical properties and microstructure for Al–Zn–Mg–Cu alloys through ECAP after optimizing the outer corner angles through FE modelling

Abhishek Ghosh, Kalyan Das, Ali Reza Eivani, Hossein Mohammadi, Hossein Vafaenezhad, Uttam Kumar Murmu, Hamid Reza Jafarian, **Manojit Ghosh**

Archives of Civil and Mechanical Engineering

Published:2023 <https://doi.org/10.1007/s43452-023-00609-7>

67. Microstructural Analysis and Corrosion Behavior of a Titanium Cenosphere Composite Foam Fabricated by Powder Metallurgy Route

Dibyendu Dutta Majumdar, Shrishty Sahu, Dehi Pada Mondal, Amit Roychowdhury, Amol Kumar Jha, **Manojit Ghosh**

Chemistry Select

Published:2023 <https://doi.org/10.1002/slct.202203581>

66. Functionalized mesoporous SiO₂-CaO-Na₂O-P₂O₅-based nanometric glass-ceramic particles with enhanced dispersibility and bioactivity

Jaideep Adhikari, Shalini Dasgupta, Ananya Barui, Manojit Ghosh, Prosenjit Saha

Journal of Sol-Gel Science and Technology,

2023, <https://doi.org/10.1007/s10971-023-06074-1>

65. Fabrication and Characterization of SiC-reinforced Aluminium Matrix Composite for Brake Pad Applications

Arpita Chatterjee, Soumyadeep Sen, Subhodeep Paul, Pallab Roy, Asiful H Seikh, Ibrahim A Alnaser, Kalyan Das, Goutam Sutradhar, **Manojit Ghosh**

Metals (MDPI),

Published:2023 (13, 584) <https://doi.org/10.3390/met13030584> <Q1>

64. Evolution of Dynamic Recrystallization Behavior and Simulation of Isothermal Compression of Zn-22al Alloy

Hossein Mohammadi, Ali Reza Eivani, Seyed Hossein Seyedein, **Manojit Ghosh**, Hamid Reza Jafarian

ISSN 2238-7854, *Journal of Materials Research and Technology*

Published:2023 <https://doi.org/10.1016/j.jmrt.2023.03.204> <Q1>

63. Simulation of Deformation and Dynamic Recrystallization During Isothermal Compression of Zn-22Al Alloy

Hossein Mohammadi, Ali Reza Eivani, Seyed Hossein Seyedein, **Manojit Ghosh**, Hamid Reza Jafarian, SSRN

Published:2023 <https://doi.org/10.2139/ssrn.4026152>

62. Temperature-assisted microstructure development for TiB₂ reinforced Cu matrix composite

Uttam Kumar Murmu, Abhishek Ghosh, **Manojit Ghosh**

Engineering Research Express

Published:2023 <https://doi.org/10.1088/2631-8695/acb63b>

61. A review on metallurgical features of hot-dip aluminized steel

Partha Pratim Dey, Shrishty Sahu, Partha Sakha Banerjee, **Manojit Ghosh**

Engineering Research Express

Published:2023 <https://doi.org/10.1088/2631-8695/acb902>

60. An Investigation of Microstructural Evolution and Flow Instability During Hot Deformation of Biodegradable Zn-1.2 mg

Marjan Moradi, Ali Reza Eivani, Seyed Hossein Seyedein, **Manojit Ghosh**, Hamid Reza Jafarian SSRN, Published:2023 <https://dx.doi.org/10.2139/ssrn.4239513>

59. The effect of multi-pass friction stir processing on microstructure, mechanical properties, and Corrosion behaviour of WE43-nHA bio-composite

A.R. Eivani and M. Mehdizade and **M. Ghosh** and H.R. Jafarian, , 22, 776-794

Journal of Materials Research and Technology

Published:2023 <https://doi.org/10.1016/j.jmrt.2022.11.141> <Q1>

58. Investigation on the effects of pretreatment on the surface characteristics of duplex plasma-treated AISI P20 tool steel

Kalyan Das, Soumyadeep Sen, Alphonsa Joseph, Abhishek Ghosh, Koushik Biswas, Subroto Mukherjee, **Manojit Ghosh**, *Materialia*

Published:2023, <https://doi.org/10.2139/ssrn.4212308>

57. Phase stability, microstructure, and mechanical properties of spark plasma sintered nanocrystalline boron-doped AlCoFeMnNi high-entropy alloy,

Sahar Pourmohammadi, Ali Mohammadnejad, Abbas Bahrami, SH Mousavi Anijdan, Nokeun Park, **Manojit Ghosh**

Metals, Published: 2023, (13(6), 1025); <https://doi.org/10.3390/met13061025> <Q1>

56. Low Speed Laser Beam Welding (LBW) of 6061-T6 Alloys Using a 300 W Pulsed Nd: YAG Laser: Microstructure Development and Crack Formation.

B Ghosh, S Mondal, S Chandra, JD Majumdar, **M Ghosh**

Lasers in Engineering, Old City Publishing 2023, Vol. 43, Issure 4-6

55. Effects of surface patterning and topography on the cellular functions of tissue engineered scaffolds with special reference to 3D bioprinting,

Jaideep Adhikari, Avinava Roy, Amit Chanda, Gouripriya DA, Sabu Thomas, Manojit Ghosh, Jinku Kim, Prosenjit Saha,

Biomaterials Science,

2023, (vol.11, Issue:4, 1236-1269), <https://doi.org/10.1039/D2BM01499H>

54. Effect of Pre-treatment and Duration of Pulse Plasma Nitriding on Duplex Plasma Treatment

by Physical Vapour Deposition of TiN on AISI D2 Steel

Kalyan Das, Alphonsa Joseph, Abhishek Ghosh, Gourab Saha, Ramkrishna Rane, Subroto Mukherjee, **Manojit Ghosh**

Journal of Materials Engineering and Performance

Published:2023, <https://doi.org/10.1007/s11665-022-07776-3> <Q2>

2022

53. Mechanical alloying of ball-milled Cu-Ti-B elemental powder with the in-situ formation of titanium diboride

Manojit Ghosh, Uttam Kumar Murmu, Abhishek Ghosh, Asiful H. Seikh, Ibrahim A. Alnaser, Hany S. Abdo, Naif S. Alowaysi *Metals*

2022, (vol. 12, Issue 12, 2108) DOI: <https://doi.org/10.3390/met12122108> <Q1>

52. Fabrication and Characterisation of Silicon Carbide and Graphite Reinforced Aluminium Matrix Composite

Arpita Chatterjee, Soumyadeep Sen, Subhodeep Paul, Kunal Ghosh, Manojit Ghosh, Goutam Sutradhar

Journal of The Institution of Engineers (India): Series D,

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 21. **Microstructure and Mechanical Properties of Severely Deformed Aluminum Alloys**
Shrishty Sahu, Abhishek Ghosh, Uttam Kumar Murmu, Kalyan Das, Manojit Ghosh
Advances in Processing of Lightweight Metal Alloys and Composites: Microstructural Characterization and Property Correlation, Springer Nature
2022, https://doi.org/10.1007/978-981-19-7146-4_12
 20. **Mechanical Properties of Crystalline and Semicrystalline Polymer Systems**
Manojit Ghosh, Uttam Kumar Murmu, Jaideep Adhikari, Anway Naskar, Debsundar Dey, Avinava Roy, Arkajit Ghosh,
Hybrid Plastics and Natural Materials. In: Encyclopedia of Materials: Plastics and Polymers
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 19. **Polymer-Ceramic Composite Electrolyte for Li-Ion Batteries in Reference Module in Materials Science and Materials Engineering**
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Manojit Ghosh, Anway Naskar, Arkajit Ghosh, Avinava Roy, Kinnor Chattopadhyay
2021, <https://doi.org/10.1016/B978-0-12-820352-1.00123-1>
 18. **Hybrid Plastics and Natural Materials**
Avinava Roy, Anway Naskar, Arkajit Ghosh, Jaideep Adhikari, Prosenjit Saha, **Manojit Ghosh**
Reference Module in Materials Science and Materials Engineering, 2021
 17. **Equal Channel Angular Pressing (ECAP) with Al Alloy - A Review**
Nani Gopal Roy*, Debayan Mondal, Partha Pratim Dey, and **Manojit Ghosh**
International Conference on Advances in Materials Processing & Manufacturing Applications, pp. 505 – 513, 2021, DOI: https://doi.org/10.1007/978-981-16-0909-1_52
 16. **Renewable and sustainable materials in automotive industry,**
Manojit Ghosh, Arkajit Ghosh, Avinava Roy
Reference Module in Materials Science and Materials Engineering in Encyclopedia of Renewable

and Sustainable Materials

2020, [doi:10.1016/B978-0-12-803581-8.11461-4](https://doi.org/10.1016/B978-0-12-803581-8.11461-4)

- 15. Antibacterial and antimicrobial coatings on metal substrates by cold spray technique: Present and future perspectives,**
Manojit Ghosh, Avinava Roy, Arkajit Ghosh, Hritwik Kumar, Gourab Saha
Green Approaches in Medicinal Chemistry for Sustainable Drug Design: Advances in Green and Sustainable Chemistry, Elsevier, Pages 15-45
2020, <https://doi.org/10.1016/B978-0-12-817592-7.00002-2>
- 14. Nuclear Electricity–Renewability, Losses and Recycling**
Manojit Ghosh, Shashank Sharma, Partha S Banerjee
Elsevier, 2020, [10.1016/B978-0-12-803581-8.11234-2](https://doi.org/10.1016/B978-0-12-803581-8.11234-2)
- 13. Conductive glass coating: Effect of atmospheric plasma treatment**
Avishek Roy, Arun Kumar Mukhopadhyay, Shilabati Hembram, **Manojit Ghosh**
AIP Conference Proceedings, Vol. 2115, 030248 (2019)
DOI: <https://doi.org/10.1063/1.5113087>
- 11. Metallic Materials From E-Waste**
Manojit Ghosh, Debashish Sur, Shibani Basu, Partha S Banerjee
Encyclopedia of Renewable and Sustainable Materials
2018, ISBN (Electronic) 9780128131961
- 11. Corrosion behavior and bioactivity of titanium foam developed by powder metallurgy route**
D. Dutta Majumdar*, D. P. Mondal, **M. Ghosh**
E-MRS Spring Meeting, Strasbourg, France, 22–26 May, 2017
- 10. Study of mechanical properties, microstructures and corrosion behavior of Al 7075 T651 alloy with varying strain rate**
A. Mukherjee, **Manojit Ghosh,** K. Mondal
IOP Conference Series: Materials Science and Engineering, Vol. 75, 012031 (2015)
DOI: <https://doi.org/10.1088/1757-899X/75/1/012031>
- 9. Effect of Temperature and Deformation Mode on Texture Evolution of AA6061**
M. Ghosh, A. Miroux, and L.A.I. Kestens
Proceedings of the International Conference on Materials Science, Engineering and Manufacturing, Singapore, 2014
- 8. Application of combined model approaches to the simulation of microstructure evolution during processing of aluminium alloys**
A. Miroux, **M. Ghosh,** S. Kurukuri, et al.
Proceedings of the 2013 TMS Annual Meeting & Exhibition, San Antonio, Texas, USA, 2013
- 7. Thermo-mechanical forming of Al-Mg-Si alloys: modelling and experiments**
S. Kurukuri, A.H. van den Boggaard, **M. Ghosh,** and A. G. Miroux
NUMIFORM 2010, Proceedings of the 10th International Conference, American Institute of Physics
- 6. An advanced material model for aluminium sheet forming at elevated temperatures**
S. Kurukuri, **M. Ghosh,** A. G. Miroux, and A.H. van den Boggaard
Proceedings of the Xth International Conference on Computational Plasticity, CIMNE, ISBN 978-84-96736-69-6
- 5. Mechanical and Forming Properties of AA6xxx Sheet from Room to Warm Temperature**
Manojit Ghosh, Alexis Miroux, Srihari Kurukuri, Leo Kestens, and Ton van den Boogaard
Proceedings of the 12th International Conference on Aluminium Alloys, Yokohama, Japan, 5–9 September 2010, pp. 1243–1248
- 4. Deformation texture and plastic anisotropy with temperature for AA6016**
M. Ghosh, A. Miroux, J. Sidor, and L. Kestens
Proceedings of the 2009 TMS Annual Meeting & Exhibition, The Minerals, Metals & Materials Society (TMS), USA, 2009, p. 101
- 3. Textural changes after warm temperature forming of AA6xxx**
M. Ghosh, A. Miroux, R. Werkhove, P. Jan Bolt, J. Sidor, and L. Kestens

Aluminium Alloys, Proceedings of the 11th International Conference on Aluminium Alloys, Wiley-VCH Verlag GmbH & Co., Germany, ISBN 978-3-527-32367-8, 2008, p. 782

2. Changes in deformation texture and plastic anisotropy with temperature for AA6016

M. Ghosh, A. G. Miroux, and L. Kestens

Proceedings of the International Symposium for Research Scholars on Metallurgy, ISSN 0973-659X, 2008, p. 165

1. A dislocation-based constitutive model for warm forming of aluminium sheet

M. Ghosh, S. Kukukuri, A. G. Miroux, and A.H. van den Boggaard

Proceedings of the 9th International Conference on Technology of Plasticity, ISBN 978-89-5708-152-5, 2008, p. 233

Patent

D. D. Majumder, V. Kumar, A. Roychoudhury, D. P. Mondal, **M. Ghosh**, S. K. Nandi, A process for development of cenosphere dispersed Ti composite foam with improved performance. Indian Patent, dated: October 2, 2019.

Broad Research Areas

- ✓ Development of a novel Al based metal matrix composite with hybrid reinforcement
- ✓ Additive manufacturing of high entropy alloys
- ✓ Texture evaluation and study of mechanical properties during EBW and rolling of pure Nb
- ✓ Correlating Microstructure, Mechanical Properties and Crystallographic Texture of UFG Al-Li alloy
- ✓ Characteristics and Bio-compatibility Evaluation of Porous Titanium for Bio-medical Applications
- ✓ Effect of Ag and Sn in EN AW 7075 alloy during artificial ageing
- ✓ Estimation of Tribological properties and thermo-mechanical response of Cu-TiB₂ MMCs
- ✓ FSW and LBW for similar and dissimilar Metal Joints
- ✓ Aluminium based coating by hot dipping on steel

Honours & Awards

1. Ranked among World's top 5% scientist in the 2025 SciRank Global Registry, based on rigorous bibliometric analysis
2. Service Milestone Award for completing 25 years of service at IEST, Shibpur, in November 2025
3. Visiting Scientist at the Department of Materials Science and Engineering, University of Michigan, Ann Arbor, USA
4. "K F Antia Memorial Prize" for the article "Application of SiC and graphite reinforced Aluminium Matrix composites in breaking systems and its validation through finite element analysis" published in the Journal of Institution of Engineers: Series D, Year: 2024
5. Guest Editor, metals, MDPI, Year: 2022
6. Mitacs Globalink Research Award, March 2020, Home Supervisor of GRA intern Mr. Arkajit Ghosh.
7. Indian Institute of Metals (IIM) – American Society of Metals (ASM) Visiting Lectureship Award, 2019
8. Visiting scientist under FEA-CWO mobility program at Ghent University, Belgium, September 2015
9. Prof. Dr. Ing. Dr. Hc. Hans Wilfried Wagener Endowment Award for the paper entitled "Changes in deformation texture and plastic anisotropy with temperature for AA6016" in the conference ISRS-2008, held on 10-12 December 2008 at IIT, Chennai.

10. Visiting Scientist at IISc. Bangalore under UGC sponsored NRCM scheme, April 2009.
11. Institute fellowship at Technical University Delft, Netherlands, from 2004 to 2008 to pursue Ph.D. study.
12. Visiting Fellow at Centre for Theoretical Studies (CTS), IIT, Kharagpur 2003-04.

Research Projects

1. *“Design development and multi-scale materials modeling of high-entropy alloy-based multifunctional composites through additive manufacturing”*, Partnerships for Accelerated Innovation and Research (PAIR), Anusandhan National Research Foundation, Ongoing (2025 to 2030) 07 Cr; Candidate as PI
2. *Globalink Research Award Project on “Machine Learning Model development for Blast Furnaces”*, Duration: 12 weeks (May to August 2021), Sponsoring Agency: Mitacs, Collaborating Institute: University of Toronto, Amount: \$3000, Activity: Visiting Student Intern
3. *“Development of advanced ultrafine grained aluminium alloys for aircraft and aerospace applications through Severe Plastic Deformation: correlating microstructure, mechanical properties and crystallographic texture”*, Duration: 2 years (2019 to 2022), Sponsoring Agency: SPARC-DST, Collaborating Institute: Ghent University, Belgium, Amount: 40 lakhs, Candidate as PI
4. *Indo-Belgian Top up grant on Influence of Ag and Sn on Microstructure and Texture in Al-Zn-Mg Alloy*, Duration: 3 years (2016 to 2019), Sponsoring Agency: DST-BELSPRO, Collaborating Institute: Ghent University, Belgium, Amount: 19 lakhs, Candidate as PI
5. *Evolution of microstructure and texture in dissimilar alloys during Electron beam Welding*, Duration: 3 years (2015 to 2018), Sponsoring Agency: DAE-BRNS, Amount: 23 lakhs, Candidate as PI
6. *Influence of Silver and Tin on Microstructure and texture in Al-Zn-Mg alloy*, Duration: 3 years (completed), Sponsoring Agency: UGC, Amount: 13 lakhs, Candidate as PI
7. *Influence of Ag and Sn on Microstructure and Texture in Al-Zn-Mg Alloys during Severe Plastic Deformation*, Duration: 3 years (completed), Sponsoring Agency: UGC-NRCM, Collaborating Institute: IISc, Bangalore, Amount: 1 lakh, Candidate as PI
8. *Nodal person of the Erasmus Mundus Action 2 program as Associate partner*, Duration: 4 years (2015-2019), Sponsoring Agency: EU, Collaborating Institute: Ghent University, Belgium, Activity: Student exchange

Reviewer of International Journal (partial list)

Reviewed the following international journals in recent times: Materials Science and Engineering: A, Journal of Alloys and Compounds, Materialia, Materials Science and Technology, Engineering Failure Analysis, Arabian Journal of Science and Technology, Journal of Materials Research and Technology, Journal of Surface and Coating Technology, Materials Characterization, Metallurgical and Materials Transactions A, Arabian Journal of Science and Engineering

Professional Memberships

- ✓ Life Member, Indian Institute of Metals (IIM)
- ✓ Life member Indian Association for Productivity, Quality & Reliability (IAPQR)
- ✓ Member of the Indian Society for Technical Education
- ✓ Life Member of Millennium Institute for Energy & Environment Management
- ✓ Associate member of the Institution of Engineers (I)
- ✓ Life Member of Materials Research Society of India

- ✓ Life Member of Indian Science Congress Association
- ✓ Life member of Coal Ash Institute of India
- ✓ Life member of the mining, geological and metallurgical institute of India

Organization of National/International Conferences

1. Organizing Secretary for the webinar series on “Intuitions and Innovations on Future Generation Materials” Under the aegis of Scheme for Promotion of Academic and Research Collaboration (SPARC), MoE, GoI, 2021
2. Organizing Chairman, “Reminiscence – The Metallurgical Journey of 80 Years”, on the occasion of 80 years anniversary of establishment of the Department of Metallurgy and Materials Engineering, IEST, Shibpur, 2022
3. Organizing Secretary, National Seminar on “Green Initiatives in Metallurgical Industries in India”, organized by the department of Metallurgy and Materials Engineering, IEST, Shibpur, in association with Indian Institute of Metals, BESU, Chapter, 2019
4. Convener, International Conference on Tailoring Grain Orientation – Processing and Applications (ICTGO2K19), organized by the Department of Metallurgy and Materials Engineering in collaboration with TEQIP III, Indian Institute of Metals, BESU Chapter, 2019
5. Convener, National seminar on “Advanced Materials”, organized by the Department of Metallurgy and Materials Engineering in collaboration with TEQIP III, Indian Institute of Metals, BESU Chapter, 2017
6. Convener, “Metallum 2018”, organized by the Department of Metallurgy and Materials Engineering in collaboration with TEQIP III, Indian Institute of Metals, BESU Chapter, 2018
7. Convener, International Workshop on “Crystallography and Texture”, under Indo-Belgium framework organized by the Department of Metallurgy and Materials Engineering in collaboration with Indian Institute of Metals, BESU Chapter, 2016
8. In organizing Committee of “Materials Characterization: Principles and Practices, MCPP 2016”, held from 25th July to 5th August 2016 at IEST, Shibpur
9. Convener, International Conference on “Corrosion Control in Infrastructure, Pipeline, RCC structure & Automobile” held on 28th February and 1st March 2014, organized by the Department of Metallurgy and Materials Engineering in collaboration with Institute for Steel Development and Growth and Indian Institute of Metals, BESU Chapter.
10. Convener, International Conference on “Energy and Environmental issues in Non-ferrous Industries: Compilation of Benchmarks” held on 7th and 8th August 2012, organized by the Department of Metallurgy and Materials Engineering in collaboration with Millennium Institute of Energy and Environment Management.
11. Convener, National seminar on “Wear Resistance Surfaces and Materials for Industrial Applications” held on 7th and 8th August 2010, organized by the Department of Metallurgy and Materials Engineering in collaboration with Indian Institute of Metals, BESU chapter.
12. Joint coordinator of the Welding Summer School organized by the Department of Metallurgy, Bengal Engineering College (D.U.) in 2004
13. Joint coordinator of National Institute of Secondary Steel Making Technology Course run by Department of Metallurgy, B.E. College (2000-2001)

Recent Activities

- Member of the Organizing committee: Seminar on “Managing Energy and Environment in Steel-Based Industries: Research, Technology Application, and Development of Eco-friendly and Energy Efficient Business”, on 28th February 2024, organized by the Department of Metallurgy and Materials Engineering, IEST, Shibpur, Indian Institute of Metals, Howrah Chapter and Millennium Institute of Energy and Environment Management
- Member of the Organizing Committee of the workshop on “Energy and Environmental Issues in Metallurgical Industries”, 12 September 2025, as part of its Silver Jubilee celebrations of the

Millennium Institute of Energy and Environment Management (est. 2000), the Department of Metallurgy and Materials Engineering, in collaboration with the Indian Institute of Metals, Howrah Chapter.

- Chairman of the Editorial Board of the 29th *International Conference on Non-Ferrous Metals* (ICNFM 2025) held on 11th –12th July 2025 at Hotel Taj Bengal, Kolkata. Organized by Corporate Monitor in association with the Jawaharlal Nehru Aluminium Research, Development, and Design Centre, the conference brought together global experts, industry leaders, and researchers to explore advancements, challenges, and opportunities in the non-ferrous metals sector.
- Member of the organizing committee of the *Industry - Academia Meet* held on 10th July 2025 at IEST Shibpur, organized by the Indian Institute of Metals, Howrah Chapter, in collaboration with the Department of Metallurgy and Materials Engineering, IEST Shibpur.
- Convenor of the 33rd *Dr. A. K. Seal Memorial Lecture* delivered by Dr. V. Balasubramanian, Professor and Director, Center for Materials Joining and Research (CEMAJOR), Annamalai University, jointly organized with IIM BESU chapter at Biswa Bangla Convention Center, Kolkata on July 20, 2024.
- Convenor of the 34th *Dr. A. K. Seal Memorial Lecture* delivered by Ms Sukla Mistry, Director, Refineries, IOCL, at the Biswa Bangla Convention Centre, Kolkata, on 26th July 2025
- Invited lecture on *Controlling properties of Al alloys through alloy chemistry* in a Professional Educational Course (Online) a workshop on Machine Learning and Industrial, 2025, organized by the Indian Institute of Metals.
- Invited lecture on *Process metallurgy* (Course Number IIM25-105), Online Mode 8, 9 and 10 January 2025, organized by the Indian Institute of Metals.
- Invited lecture on *Downstream Processing of Copper Alloys: Technologies and Innovations on A workshop on Future-ready Copper Technologies and AI-driven Sustainability*, Online Mode 26 th September 2025, organized by the Indian Institute of Metals and Hindalco Industries
- Course co-ordinator of The Indian Institute of Metals Short Professional Educational Courses (Online) on *Welding of Metallic Systems and Industry 4.0: Bridging Fundamentals with Smart Manufacturing* (Course Number IIM-25-110), Online Mode 6th and 7th November, 2025
- Invited lecture on “Physics of Welding” in Short Professional Educational Courses (Online) on Welding of Metallic Systems and Industry 4.0: Bridging Fundamentals with Smart Manufacturing (Course Number IIM-25-110) organized by The Indian Institute of Metals, 6th and 7th November 2025
- Invited lecture on “Physical metallurgy of non-ferrous metals welding” in Short Professional Educational Courses (Online) on Welding of Metallic Systems and Industry 4.0: Bridging Fundamentals with Smart Manufacturing (Course Number IIM-25-110) organized by The Indian Institute of Metals, 6th & 7th November, 2025
- Conducted one-day international symposium on “design of high-performance materials” (organized by the Department of Metallurgy and Materials Engineering, & Indian Institute of Metals, Howrah Chapter), date: 10-03-2026
- Speaker and a session chair: “The scientific legacy of R.K. Ray: Crystallographic Texture and Beyond” and a session chair at "International workshop on High Throughput Correlative Materials Characterization (HTCMC)-2026", University of Hyderabad, 10-11 February 2026.
- Attended Australian-India Mining Innovation Summit, Friday 13 March 2026 | 5:30 – 8:30 PM at Hotel Novotel, Kolkata
- Farewell to the Deputy Consul General of Australia and Industry interaction, Friday, 10th April, Raajkutir Banquet Hall, Kolkata.
- Delivered an invited lecture on "Microstructural engineering of copper alloys for enhanced electrical conductivity and mechanical performance" at the 30th International Conference on Non-ferrous Metals (ICNFM) 2026 at Hotel Babylon, Raipur, during 2nd and 3rd July 2026.
- Chaired a session at the 30th International Conference on Non-ferrous Metals (ICNFM) 2026 at Raipur during 2nd and 3rd July 2026.

- Chairman of the Editorial Board of the 29th *International Conference on Non-Ferrous Metals* (ICNFM 2026) held on 2nd and 3rd July 2026 at Hotel Babylon, Raipur. Organized by Corporate Monitor in association with the Jawaharlal Nehru Aluminium Research, Development, and Design Centre, the conference brought together global experts, industry leaders, and researchers to explore advancements, challenges, and opportunities in the non-ferrous metals sector.
- Delivered an invited lecture on “The new resource war: geopolitics, sustainability and Indian strategy on critical minerals” in the event of World Environment Day (05.06.26) organised by Millennium Institute of Energy Environment and Management, Kolkata.
- Delivered an invited lecture in FDP on “Empowering researchers with contemporary methodology, analytical tools and publication strategies” organized by Dr. Sudhir Chandra Sur Institute of Technology, Dum Dum, Kolkata on 10.06.26
- Two-day faculty upgradation Program on "Strengthening mentoring and the mental well-being of students" held at IEST, Shibpur on 13th and 14th July 2026.

All information provided above are true to the best of my knowledge.



Manojit Ghosh