INDRANIL MANNA

LIST OF PEER REVIEWED PUBLICATIONS

(As in December 2021)

Dissertations

1. **Mechanism and Kinetics of Discontinuous Transformations**
   Premchand Roychand Scholarship (P.R.S.) thesis (1998), Calcutta University
   Supervisor: Self
2. **Some Aspects of Discontinuous Transformations in Pb-Sn and Cu-Ag Alloys**
   Doctoral (Ph.D.) Thesis (1990), I.I.T., Kharagpur
   Supervisor: Prof. S. K. Pabi
3. **Development of Cube Texture and Recrystallisation Behaviour Study in Cu Bearing soft Magnetic Ni-Fe Alloys**
   Master's (M. Tech.) Thesis (1984), I.I.T., Kanpur
   Supervisors: Prof. K. P. Gupta and Prof. R. K. Ray
4. **Effect of Thermal Cycling on Fe-Ni-Mn Maraging Steels**
   Bachelor's (B.E.) Thesis (1983), University of Calcutta, B.E. College
   Supervisors: Late P. P. Das and Prof. S. N. Basu

Book/Journal Edited

1. *Proc Indian Natn Sci Acad* **81** No. 4
   Science Based Technologies for Sustainable and Adequate Energy for India
   (A Treatise of Selected Articles Published by Indian National Science Academy, New Delhi)
   Edited by: Baldev Raj, U Kamachi Mudali and Indranil Manna
   DOI: 10.16943/ptinsa/2015/v81i4/48329
2. Rajat Banerjee, **Indranil Manna**
   Ceramic Nanocomposites: Properties and Applications
   Published by: Woodhead publisher, London, CRC press (2013)
3. J Dutta Majumdar, **I. Manna**
   Laser-Assisted Fabrication of Materials
   Hardback Book, Publisher: Springer-Verlag Berlin and Heidelberg GmbH & Co. KG
   ISBN-13: 9783642283581
3. J Dutta Majumdar, S. Sun, I. Smurov, **I. Manna** (Guest Editors)
   A special issue on "Advances in Metallic Materials Processing" under the Advanced Materials Science and Engineering series (Hindwai Publishing Corporation Ltd.) 2011
4. **I. Manna**, Guest Editor
   SURFACE ENGINEERING OF STEEL – Two special issues of STEEL TECH, a quarterly journal on Steel Technology, Editor: Dr Amit Chatterjee (August and October 2008).

5. **I. Manna**, Guest Editor
NANO SCIENCE AND TECHNOLOGY – A special issue of the Transactions of the Indian Institute of Metals, vol. 58 (6) (2005) pp. 939-1227 (27 articles, 288 pages).

Patents

1. **A Process for Surface Hardening of Low-Carbon Steel by Using High Powder Diode Laser Beam Adaptable to Automotive Components**
An application for an Indian patent (825/Kol/2010) *filed on 10 July 2010, in collaboration with Tata Steel and ARCI Hyderabad, under review.*
I. Manna, B. Syed, A. Haldar, G Padmanabhan

2. **A Device for measuring the Thermal Conductivity of a fluid with dispersion of ultra-fine solid particles**
An application for an Indian patent (390/Kol/2005) *filed in February 2005, under review.*
I. Manna, P. K. Das and M. Chopkar

3. **Development of Nano-intermetallic Dispersed Al-matrix Composites from the Al-Cu-X Ternary Metastable Precursors**
Indian patent granted on January 20, 2006 (Application No. 355/Cal/2000 filed in Kolkata, June 2000).
I. Manna, P. P. Chattpopadhyay and S. K. Pabi

Book Chapters Authored

1. J. Dutta Majumdar, A. Weisheit and I. Manna (2016): **Laser Surface Processing for Tailoring of Properties by Optimization of Microstructure**, Invited chapter in ***Advanced Manufacturing Techniques Using Laser Material Processing***, pp. 121-171, Published by: IGI Global, (*Editor: E. Akinlabi et al.*).

2. J. Dutta Majumdar and **I. Manna** (2015): **Laser Surface Engineering of Titanium and its Alloys, in Laser Surface Engineering processes and Applications**, Woodhead Publishing, Cambridge, ISBN: 978-1-78242-074-3, Chapter 21, pp. 483-521; (*Edited by:J. R. Lawrence, C. Dowding, D. Waugh and J. B. Griffiths*).

3. J. Dutta Majumdar and **I. Manna** (2015)**: Development of Functionally Graded Coating by Thermal Spray Deposition,** in *Thermal Sprayed Coating and their Tribological Performance***,** Engineering Science Reference, Hershey. pp. 121-162, ISBN: 978-1-4666-7490-5, (*Editors: M. Roy and J. Paulo Davim*)**.**

4. **Indranil Manna** (2015): **An Engineer or a Scientist – A perpetual dilemma**, in *The mind of an engineer*, Springer, pp 43-52 (*Editor: P Ghosh, INAE*)

5. J. Dutta Majumdar and **I. Manna** (2014), **Laser Surface Engineering**, in: *Handbook of Manufacturing Engineering and Technology*, pp. 2639-2676, Springer, London, ISBN: 978-1-4471-4976-7 (*Editor: Andrew Nee*).

6. Gayatri Paul, **Indranil Manna** (2013): **Science and Technology of Nanofluids including Ceramic and other Nanoparticles – Chapter 10: Introduction, Application and Rheological Properties** (pp. 323-345); **and Chapter 11: Synthesis and Thermal Properties** (pp. 346-396); Invited chapters in *Ceramic Nanocomposites: Properties and*

Applications, Published by Woodhead Publishing Series in Composites Science and Engineering, 2013, CRC Press, London (Editors: Rajat Banerjee, **Indranil Manna**)

7. J. Dutta Majumdar and I. Manna (2012): **Laser Assisted Fabrication - Present Status and Future Scope** (Chapter 1), in: *Laser Assisted Fabrication of Materials*, Springer Verlag, Heidelberg, (*Editors: J. Dutta Majumdar and **I. Manna***).

8. J. Dutta Majumdar and I. Manna (2012): **Laser treatment to improve the corrosion resistance of Magnesium (Mg) Alloys** (Chapter 6), in: *Laser Assisted Fabrication of Materials*, Springer Verlag, Heidelberg, (*Editors: J. Dutta Majumdar and **I. Manna***).

9. J. Dutta Majumdar and **I. Manna** (2010): **Corrosion Protection by Laser Surface Modification** (invited article), in: *Corrosion Reviews*, Narosa Publishing House, New Delhi (*Editors: Baldev Raj and U. Kamachi Mudali*).

10. J. Dutta Majumdar and **I. Manna** (2010): **Laser Assisted Surface Modification of Engineering Metals and Alloys** (invited article), in: *Surface Engineering*, Centre for Science and Technology of the Non-Aligned & other Developing Countries (NAM S&T Centre), 2010, Daya Publishing House, New Delhi (*Editors: D. Srinivasa Rao and S. V. Joshi*).

11. S. Bera and **I. Manna** (2009): **Effect of Nanocrystallization on the Phase Stability of Al-Cu-Ti and Al-Cu-Nb Metallic Systems,** in: *Microstructure and Texture in Steels*, pp. 393-405, Published by Springer, London.

Peer Reviewed Papers
[A] In Archival Journals

2021

1. J. Dutta Majumdar, D. Madapana, **I. Manna**
3-D Printing by Laser-Assisted Direct Energy Deposition (LDED): The Present Status
Transactions of the Indian National Academy of Engineering **6**(4) (2021) 933-953

2. Amitesh Chakraborty, Dileep Madapana, Shree Krishna, Sisa L Pityana, D Sen, **Indranil Manna**, Jyotsna Dutta Majumdar
Wear and Corrosion Behavior of nano carbide dispersed AISI304 Stainless Steel by laser surface processing
Surface Topography: Metrology and Properties

3. G. Paul, P.K. Das, I. Manna
Leidenfrost Phenomenon and Rewetting of Hot Vertical Tubes by Bottom Flooding Using Nanofluids
Heat Transfer Engineering **42**(16) (2021) 1332-1347

4. Pradyut Sengupta, Suddhasatwa Basu, **Indranil Manna**
Structure–property correlation in a novel ZrB_2–SiC ultrahigh-temperature ceramic composite with Al-alloy sinter additive
Journal of Materials Science **56(34)** (2021) 19029–19046.

5. M.K. Debnath, S. Anishetty, J. Dutta Majumdar, **I. Manna**
Wear and Corrosion Protection of Interstitial Free Steel by Sputter Deposition of Alloy

Coating as a Novel Alternative to Galvanizing
Journal of Materials Engineering and Performance **30(8)** (2021) 5682–5691

6. M. Dileep, R. Bathe, **I.Manna,** G. Padmanabham, J. Dutta Majumdar
Ultrafast Laser-Induced Periodic Structuring of Titanium Alloy (Ti-6Al-4V)
Journal of Materials Engineering and Performance **30(6)** (2021) 4000–4011

7. S.K. Sharma, K. Biswas, A.K. Nath, **I. Manna**, J. Dutta Majumdar
Wear behavior of laser surface melted Inconel 718
Lasers in Engineering **50** (2021) 1–13

8. A. Chakraborty, J.K. Singh, D. Sen, S. Krishna, J. Dutta Majumdar
Microstructures, wear and corrosion resistance of laser composite surfaced austenitic stainless steel (AISI 304 SS) with tungsten carbide
Optics and Laser Technology **134** (2021) 106585

9. Indrani Das Jana, Partha Kumbhakar, Saptarshi Banerjee, Chinmayee Chowde Gowda, Nandita Kedia, Saikat Kumar Kuila, Susanta Banerjee, Narayan Chandra Das, Amit Kumar Das, **Indranil Manna**, Chandra Sekhar Tiwary, Arindam Mondal
Copper Nanoparticle-Graphene Composite-Based Transparent Surface Coating with Antiviral Activity against Influenza Virus
ACS Applied Nano Materials **4** (2021) 352–362

10. Pradyut Sengupta, Siba Sundar Sahoo, Arjak Bhattacherjee, Suddhasatwa Basu, **Indranil Manna**
Effect of TiC Addition on Structure and Properties of Spark Plasma Sintered ZrB_2-SiC-TiC Ultrahigh Temperature Ceramic Composite
Journal of Alloys and Compounds **850** (2021) 156668

11. M. Kumar, G.J. Gibbons, A. Das, **I. Manna**, D. Tanner, H.R. Kotadia
Additive manufacturing of aluminium alloy 2024 by laser powder bed fusion: microstructural evolution, defects and mechanical properties
Rapid Prototyping Journal **27** (2021) 1388–1397

2020

12. S.K. Sharma, K. Biswas, A.K. Nath, **I. Manna**, J. Dutta Majumdar
Microstructural change during laser welding of Inconel 718
Optik **218** (2020) 165029 (1-11)

13. Manoj Kumar, Mitun Das, Jyotsna Dutta Majumdar, **Indranil Manna**
Development of Graded Composition and Microstructure on Inconel 718 by Laser Surface Alloying with Si, Al and ZrB_2 for Improvement in High Temperature Oxidation Resistance
Surface & Coatings Technology **402** (2020) 126345 (1-11)

14. S. Nath, **I. Manna**, J. Lawrence, J.Dutta Majumdar
Linear Reciprocating Wear of Yttria-Stabilized Zirconia-Based Composite Coatings Developed by Thermal Spray
Journal of Materials Engineering and Performance **29** (2020) 5041-5056

15. A. Meherwal, M. Kumar, S. K. Karak, J. Dutta Majumdar, **I. Manna**
High Temperature Oxidation Study of Nano–Y_2O_3 Dispersed Ferritic Alloys Synthesized by Mechanical Alloying and Sintering
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Leidenfrost Phenomenon and Rewetting of Hot Vertical Tubes by Bottom Flooding Using Nanofluids
Heat Transfer Engineering 42 (2020) 1-16

17. S.K. Sharma, K. Biswas, A.K. Nath, **I. Manna**, J. Dutta Majumdar
Microstructural characterization of laser surface-melted Inconel 718
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18. Gayatri Paul, Prasanta Kumar Das, **Indranil Manna**
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19. Gayatri Paul, Prasanta Kumar Das, **Indranil Manna**
Nanoparticle deposition from nanofluid droplets during Leidenfrost phenomenon and consequent rise in transition temperature
International Journal of Heat and Mass Transfer **148** (2020) 119110

20. Arjak Bhattacharjee, Anshul Gupta, Madhu Verma, Prem Anand Murugan, Pradyut Sengupta, Saravanan Matheshwaran, **Indranil Manna**, Kantesh Balani
Antibacterial and magnetic response of site-specific cobalt incorporated hydroxyapatite
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21. Arjak Bhattacharjee, Rubia Hassan, Anshul Gupta, Madhu Verma, Prem Anand Murugan, Pradyut Sengupta, Saravanan Matheshwaran, **Indranil Manna**, Kantesh Balani
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23. M.K. Debnath, S. Anishetty, J. Dutta Majumdar, **I. Manna**
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INAE Letters **4 (3)** (2019) 181-189

24. Arjak Bhattacharjee, Anshul Gupta, Madhu Verma, Prem Anand Murugan, Pradyut Sengupta, Saravanan Matheshwaran, **Indranil Manna**, Kantesh Balani
Site-Specific Antibacterial Efficacy and Cyto/Hemo-1 compatibility of Zinc Substituted Hydroxyapatite
Ceramics International **45** (2019) 12225-12233.

25. Arjak Bhattacharjee, Yanan Fang, Thomas J. N. Hooper, Nicole L. Kelly, Disha Gupta, Kantesh Balani, **Indranil Manna**, Tom Baikie, Peter T. Bishop, T.J. White, John V. Hanna
Crystal Chemistry and Antibacterial Properties of 2 Cupriferous Hydroxyapatite
Materials (Open Access), **12** (2019) Article Number 1814

26. P. Sengupta and **I. Manna**
Advanced High-Temperature Structural Materials for Aerospace and Power Sectors:

A Critical Review
Trans Indian Inst Met **72** (2019) 2043-2059.

27. A. Chakraborty, **I. Manna**, D. Sen, S. Pityana, T. Dutta, J. Dutta Majumdar
Laser surface alloying (LSA) of AISI 304 stainless steel with 20WC+40Co+40NiCr for improving wear resistance
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28. M. K. Debnath, J. Dutta Majumdar, A. Kumar, S. Mukherjee, **I. Manna**
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29. S. Chattopadhyay, G. Anand, S. G. Chowdhury and **I. Manna**
Effect of reverse austenitic transformation on mechanical property and associated texture evolution in AISI 316 austenitic stainless steel processed by low temperature rolling and annealing
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Laser Surface Melting of AISI 316L Stainless Steel for Bio-implant Application
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31. S. Nath, **I. Manna**, A. K. Jha, S. C. Sharma, S. K. Prathikar and J. D. Majumdar
Thermophysical behavior of thermal sprayed yttria stabilized zirconia based composite
Ceramics International **43** (2017) 11204-11207

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32. S. Nath, **I. Manna**, S. K. Ray and J. D. Majumdar
Studies on nanotribological and oxidation resistance properties of yttria stabilized zirconia (YSZ), alumina (Al2O3) based thin films developed by pulsed laser deposition
Ceramics International **42** (2016) 7060-7071.

33. Gayatri Paul, Prasanta Kumar Das and **Indranil Manna**
Synthesis, characterization and studies on magneto-viscous properties of magnetite dispersed water based nanofluids
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34. M. Das, V. K. Balla, T. S. Sampath Kumar, A. Bandyopadhyay and **I. Manna**
Tribological, electrochemical and in vitro biocompatibility properties of SiC reinforced composite coatings
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35. Gayatri Paul, Prasanta Kumar Das and **Indranil Manna**
Assessment of the process of boiling heat transfer during rewetting of a vertical tube bottom flooded by alumina nanofluid
International Journal of Heat and Mass Transfer **94** (2016) 390-402.

36. S Nath, **Indranil Manna**, SK Ray, J Dutta Majumdar
Development and Characterization of Yttria Stabilized Zirconia and Al_2O_3 Thin Films by Pulsed Laser Deposition
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37. G. Paul, P.K. Das and **I. Manna**
Rewetting of Vertical Pipes by Bottom Flooding Using Nanofluid as a Coolant
Journal of Heat Transfer **137** (2015) 121009.

38. G. Telasang, J. Dutta Majumdar, N. Wasekar, G. Padmanabham and **I. Manna**
Microstructure and Mechanical Properties of Laser Clad and Post-cladding Tempered AISI H13 Tool Steel
Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science **46A** (2015) 2309-2321.

39. S. Nath, **I. Manna** and J. D. Mazumdar
Nanomechanical behavior of yttria stabilized zirconia based thermal barrier coating
Ceramics International **41** (2015) 5247-5256.

40. G. Telasang, J. D. Majumdar, G. Padmanabham and **I. Manna**
Wear and corrosion behavior of laser surface engineered AISI H13 hot working tool steel
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41. T. Rakshit, **I. Manna and** S. K. Ray
Effect of SnO2 concentration on the tuning of optical and electrical properties of ZnO-SnO2 composite thin films
Journal of Applied Physics **117** (2015) 025704.

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43. G. Paul, P. K. Das and **I. Manna**
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45. S. K. Sinha, S. K. Ray and **I. Manna**
Effect of Al doping on structural, optical and electrical properties of SnO2 thin films synthesized by pulsed laser deposition
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46. S. Nath, **I. Manna and** J. D. Majumdar
Kinetics and mechanism of isothermal oxidation of compositionally graded yttria stabilized zirconia (YSZ) based thermal barrier coating
Corrosion Science **88** (2014) 10-22.

47. T. Rakshit, S. Santra, **I**. **Manna and** S.K Ray
Enhanced sensitivity and selectivity of brush-like SnO2 nanowire/ZnO nanorod heterostructure based sensors for volatile organic compounds
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50. M. Das, K. Bhattacharya, S.A. Dittrick, C. Mandal, V.K. Balla, T.S. Sampath Kumar, A. Bandyopadhyay and **I. Manna**
In situ synthesized TiB-TiN reinforced Ti6Al4V alloy composite coatings: Microstructure, tribological and in-vitro biocompatibility
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51. S. Bera, S. G. Chowdhury, Y. Estrin and **I. Manna**
Mechanical properties of Al7075 alloy with nano-ceramic oxide dispersion synthesized by mechanical milling and consolidated by equal channel angular pressing
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52. S.K. Karak, J. Dutta Majumdar, Z. Witczak, W. Lojkowski, L. Ciupinski, K.J. Kurzydlowski and **I. Manna**
Evaluation of Microstructure and Mechanical Properties of Nano-Y2O3-Dispersed Ferritic Alloy Synthesized by Mechanical Alloying and Consolidated by High-Pressure Sintering
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53. A. Roy, **I. Manna**, S. Tarafder and I. Chattoraj
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Temperature-dependent photoluminescence properties of ZnO/Zn1-xMgxO multilayers grown by pulsed laser deposition
Journal of Luminescence **136** (2013) 285-290.

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56. G. Paul, **I. Manna** and P K. Das
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Microstructure and mechanical properties of nano-Y_2O_3 dispersed ferritic alloys synthesized by mechanical alloying and consolidated by hydrostatic extrusion
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