Dr Tapabrata Maity

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Expertise

Metallurgy and Metallurgical Engineering

Nanoindentation | Materials | Metallurgical | Eutectic | High entropy alloys | Fracture | Mechanics of Materials | Failure analysis

Work experience

1. National Institute of Foundry and Forge Technology (NIFFT) 2019 — Present

   Assistant Professor
   Ranchi

Education

1. Ph.D - 2016

   Indian Institute of Technology Kharagpur

2. M.Tech - 2012

   Indian Institute of Technology Kharagpur

3. B.E. - 2008

   Indian Institute of Engineering Science and Technology, Shibpur

Honours and Awards

1. Postdoctoral Fellowship - 2019

   Arizona State University, Arizona, USA

2. Postdoctoral Fellowship - 2018

   Austrian Academy of Sciences, Austria

3. Postdoctoral Fellowship - 2016

   University of Leoben, Erich Schmid Institute of Materials Science, Austria

Research Project

Development of Al3BC reinforced in-situ Al-based metal matrix composites via warm-extrusion for commercial-scale production

Role: Co- Principal investigator
Year 2021, Amount 30 lacs

Publication

1. High-entropy eutectic composites with high strength and low Young's modulus

   Tapabrata Maity, Konda Gokuldoss Prashanth, Özge Balcı, Grzegorz Cieślak, Maciej Spychalski, Tadeusz Kulik, Jürgen Eckert
   Material Design & Processing Communications, Volume , Year 2021, Pages 1-8

2. High pressure torsion induced lowering of Young 's modulus in high strength TNZT alloy for bio-implant applications

   Maity, T. and Balcı, Ö. and Gammer, C. and Ivanov, E. and Eckert, J. and Prashanth, K.G.
   Journal of the Mechanical Behavior of Biomedical Materials, Volume 108, Year 2020

3. Correction to: Influence of Substrate Surface Finish Metallurgy on Lead-

Free Solder Joint Microstructure with Implications for Board-Level Reliability (Journal of Electronic Materials, (2020), 49, 5, (3251-3258), 10.1007/s11664-020-08013-0)

Kelly, M.B. and Maity, T. and Nazmus Sakib, A.R. and Frear, D.R. and Chawla, N.
Journal of Electronic Materials, Volume 49, Year 2020, Pages 4466-4467

4. Influence of Substrate Surface Finish Metallurgy on Lead-Free Solder Joint Microstructure with Implications for Board-Level Reliability

   Kelly, M.B. and Maity, T. and Nazmus Sakib, A.R. and Frear, D.R. and Chawla, N.
   Journal of Electronic Materials, Volume 49, Year 2020, Pages 3251-3258

5. Optimizing mechanical properties of Fe26.7Co26.7Ni26.7Si8.9B11 high entropy alloy by inducing hypoeutectic to quasi-duplex microstructural transition

   Zhang, Z.-Q. and Song, K.-K. and Guo, S. and Xue, Q.-S. and Xing, H. and Cao, C.-D. and Dai, F.-P. and Völker, B. and Hohenwarter, A. and Maity, T. and Chawake, N. and Kim, J.-T. and Wang, L. and Kaban, I. and Eckert, J.
   Scientific Reports, Volume 9, Year 2019

6. Friction welding of electron beam melted Ti-6Al-4V

   Qin, P.T. and Damodaram, R. and Maity, T. and Zhang, W.W. and Yang, C. and Wang, Z. and Prashanth, K.G.
   Materials Science and Engineering A, Volume 761, Year 2019

7. Co-Cr-Mo-C-B metallic glasses with wide supercooled liquid region obtained by systematic adjustment of the metalloid ratio

   Kim, J.T. and Hong, S.H. and Kim, Y.S. and Park, H.J. and Maity, T. and Chawake, N.M. and Prashanth, K.G. and Park, J.M. and Song, K.K. and Wang, W.M. and Eckert, J. and Kim, K.B.
   Journal of Non-Crystalline Solids, Volume 505, Year 2019, Pages 310-319

8. Mechanism of high-pressure torsion-induced shear banding and lamellar thickness saturation in Co-Cr-Fe-Ni-Nb high-entropy composites

   Maity, T. and Prashanth, K.G. and Janda, A. and Kim, J.T. and Spieckermann, F. and Eckert, J.
   Journal of Materials Research, Year 2019

9. Influence of Nb on the microstructure and fracture toughness of (Zr0.76Fe0.24)100-xNbx nano-eutectic composites

   Maity, T. and Dutta, A. and Jana, P.P. and Prashanth, K.G. and Eckert, J. and Das, J.
   Materials, Volume 11, Year 2018

10. Influence of severe straining and strain rate on the evolution of dislocation structures during micro-/nanoindentation in high entropy lamellar eutectics

    Maity, T. and Prashanth, K.G. and Balci, Ö. and Kim, J.T. and Schöberl, T. and Wang, Z. and Eckert, J.
    International Journal of Plasticity, Volume 109, Year 2018, Pages 121-136

11. Anisotropy in local microstructure – Does it affect the tensile properties of the SLM samples?

    Maity, T. and Chawake, N. and Kim, J.T. and Eckert, J. and Prashanth, K.G.

Manufacturing Letters, Volume 15, Year 2018, Pages 33-37

12. ## Strengthening Effects in Nano-/Ultrafine-Grained Carbon Nanotube Reinforced-Titanium Composites Investigated by Finite Element Modeling

    Li, F. and Hao, P. and Yi, J. and Prashanth, K.G. and Maity, T. and Eckert, J.
    Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, Volume 49, Year 2018, Pages 6469-6478

13. ## Plastic deformation mechanisms in severely strained eutectic high entropy composites explained via strain rate sensitivity and activation volume

    Maity, T. and Prashanth, K.G. and Balçi, Ö. and Wang, Z. and Jia, Y.D. and Eckert, J.
    Composites Part B: Engineering, Volume 150, Year 2018, Pages 7-13

14. ## Cooperative deformation behavior between the shear band and boundary sliding of an Al-based nanostructure-dendrite composite

    Kim, J.T. and Hong, S.H. and Kim, Y.S. and Park, H.J. and Maity, T. and Chawake, N. and Bian, X.L. and Sarac, B. and Park, J.M. and Prashanth, K.G. and Park, J.Y. and Eckert, J. and Kim, K.B.
    Materials Science and Engineering A, Volume 735, Year 2018, Pages 81-88

15. ## Microstructure and strength of nano-/ultrafine-grained carbon nanotube-reinforced titanium composites processed by high-pressure torsion

    Li, F.X. and Hao, P.D. and Yi, J.H. and Chen, Z. and Prashanth, K.G. and Maity, T. and Eckert, J.
    Materials Science and Engineering A, Volume 722, Year 2018, Pages 122-128

16. ## Martensitic transformation and plastic deformation of TiCuNiZr-based bulk metallic glass composites

    Sun, H. and Song, K. and Han, X. and Xing, H. and Li, X. and Wang, S. and Kim, J.T. and Chawake, N. and Maity, T. and Wang, L. and Eckert, J.
    Metals, Volume 8, Year 2018

17. ## Microstructures, Martensitic Transformation, and Mechanical Behavior of Rapidly Solidified Ti-Ni-Hf and Ti-Ni-Si Shape Memory Alloys

    Han, X.L. and Song, K.K. and Zhang, L.M. and Xing, H. and Sarac, B. and Spieckermann, F. and Maity, T. and Mühlbacher, M. and Wang, L. and Kaban, I. and Eckert, J.
    Journal of Materials Engineering and Performance, Volume 27, Year 2018, Pages 1005-1015

18. ## Mechanical and tribological properties of Al2O3-TiC composite fabricated by spark plasma sintering process with metallic (Ni, Nb) binders

    Kumar, R. and Chaubey, A.K. and Maity, T. and Prashanth, K.G.
    Metals, Volume 8, Year 2018

19. ## Is the energy density a reliable parameter for materials synthesis by selective laser melting?

    Prashanth, K.G. and Scudino, S. and Maity, T. and Das, J. and Eckert, J.
    Materials Research Letters, Volume 5, Year 2017, Pages 386-390

20. ## Friction welding of selective laser melted Ti6Al4V parts

    Prashanth, K.G. and Damodaram, R. and Maity, T. and Wang, P. and Eckert, J.

Materials Science and Engineering A, Volume 704, Year 2017, Pages 66-71

21. Deformation mechanisms to ameliorate the mechanical properties of novel TRIP/TWIP Co-Cr-Mo-(Cu) ultrafine eutectic alloys

Kim, J.T. and Hong, S.H. and Park, H.J. and Kim, Y.S. and Suh, J.Y. and Lee, J.K. and Park, J.M. and Maity, T. and Eckert, J. and Kim, K.B.
Scientific Reports, Volume 7, Year 2017

22. Tuning of nanostructure by the control of twin density, dislocation density, crystallite size, and stacking fault energy in Cu100−xZnx (0≤x≤30 wt%)

Roy, B. and Maity, T. and Das, J.
Materials Science and Engineering A, Volume 672, Year 2016, Pages 203-215

23. Microscopic mechanism on the evolution of plasticity in nanolamellar γ-Ni/Ni5Zr eutectic composites

Maity, T. and Singh, A. and Dutta, A. and Das, J.
Materials Science and Engineering A, Volume 666, Year 2016, Pages 72-79

24. Nanoeutectic Composites: Processing, Microstructure and Properties

Das J., Maity, T. and Singh, A.
Transactions of the Indian Institute of Metals, Volume 68, Year 2015, Pages 1199-1205

25. High strength Ni-Zr-(Al) nanoeutectic composites with large plasticity

Maity T. and Das J.
Intermetallics, Volume 63, Year 2015, Pages 51-58

26. Mechanism of lamellae deformation and phase rearrangement in ultrafine β-Ti/FeTi eutectic composites

Maity T., Roy B., and Das J.
Acta Materialia, Volume 97, Year 2015, Pages 170-179

27. Microstructure and size effect in ultrafine (Ti0.705Fe 0.295)100-xSnx (0 ≤ x ≤ 4 at.%) composites

Maity, T. and Das, J.
Journal of Alloys and Compounds, Volume 585, Year 2014, Pages 54-62

28. Origin of plasticity in ultrafine lamellar Ti-Fe-(Sn) composites

Maity T. and Das J.
AIP Advances, Volume 2, Year 2012, Pages

29. A few aspects on the processing and deformation behavior of advanced eutectic alloys

Das J. and Maity T.
Transactions of the Indian Institute of Metals, Volume 65, Year 2012, Pages 571-576