BIODATA

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Address: Department of Biotechnology & Medical Engineering,
National Institute of Technology, Rourkela-769008, Orissa

Academic qualifications:

Ph.D (Surface engineering of Biomaterials, Metallurgical and Materials Engg. Department, IIT Kharagpur, 2009)

M.E (Industrial Metallurgy, Jadavpur University, 2004)

BE (Metallurgy, Jadavpur University, 2002)

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Research Areas:

- Biomaterials and Tissue Engineering
- Surface Engineering of Biomaterials
- Corrosion and Surface Protection
- Wear of Metals

Position and Honors

Received **Gold Medal** for securing first position in M.E. degree

Professional membership

Society for Biomaterials and Artificial Organs India

Ph.D. Thesis Supervision: Guided

1. Niladri Nath Panda: 2014, Development of electrospun nanofibrous silk fibroin based scaffolds for bone Tissue Engineering
2. Dr. Varshini Vishwanath: 2016, Development Of Silk-Fibroin/Chitosan Based Porous Scaffolds For Cartilage Tissue Engineering
3. Dr. Sahely SahaSurface: 2018, Modification Of Ti6al4v Bone Implants For Enhanced Osteointegration And Antibacterial Property

M.Tech (Research) Thesis Supervised

1. Ojaswini Mishra: 2018, 3d Reconstruction Of Human Bone Model From 2d X-Ray Images

Publications

Journal Articles

1. K. Ashok Kumar Raju, **A. Biswas**, “Evaluation of structural and corrosion behavior of chitosan/silver coating on Ti6Al4V/TiO2 nanotubular surface”, Surface Coatings and Technology. Volume 476, 130262, 2023.
2. K. Ashok Kumar Raju, **A. Biswas**, "Corrosion behavior of self-organized TiO2 nanotubular arrays grown on Ti6Al4V for biomedical applications," Materials Chemistry and Physics, p. 128011, 2023. 3.
3. K.Ashok Kumar Raju, **A. Biswas**, “A Comprehensive Review of Adaptive Antibacterial Coatings for Implants, Metallic and Herbal Coating Materials and Implant Biomaterial Characterization”, Processing and Characterization of Materials, Springer Proceedings in Materials, Vol. 26, p. 17–48, 2023.
4. Sahely Saha, Krishna Pramanik, **Amit Biswas** Antibacterial activity and biocompatibility of curcumin/TiO2 nanotube array system on Ti6Al4V bone implants Materials Technology. 36(4)(2021)221-232. 10.1080/10667857.2020.1742984
5. Nishchay Verma, Krishna Pramanik, Amit Kumar Singh, **Amit Biswas**. Design of magnesium oxide nanoparticle incorporated carboxy methyl cellulose/poly vinyl alcohol composite film with novel composition for skin tissue engineering. Materials Technology (2021)1-11.10.1080/10667857.2021.1873634
6. Sahely Saha, Krishna Pramanik, **A. Biswas.** Silk fibroin coated TiO_2 nanotubes for improved osteogenic property of Ti6Al4V bone implants. Materials Science & Engineering C, 105(2019) 109982. 10.1016/j.msec.2019.109982
7. Amit Kumar Singh, Krishna Pramanik, **Amit Biswas**. MgO enables enhanced bioactivity and antimicrobial activity of nBg for bone tissue engineering application. Materials Technology: Advanced Performance Materials, 34 (13) 2019.10.1080/10667857.2019.1638636
8. P. Agrawal, K. Pramanik, **A. Biswas** and R.Ku Patra. In vitro cartilage construct generation from silk fibroin- chitosan porous scaffold and umbilical cord blood derived human mesenchymal stem cells in dynamic culture condition. Journal of Biomedical Materials Research Part A. 106, 2(2018)397-407. 10.1002/jbm.a.36253
9. P. Agrawal, K. Pramanik, V. Vishwanath, **A. Biswas**, A. Bissoyi and P. K. Patra. Enhanced chondrogenesis of mesenchymal stem cells over silk fibroin/chitosan-chondroitin sulfate three dimensional scaffold in dynamic culture condition. Journal of Biomedical Materials Research Part B: Applied Biomaterials. 106(7) (2018)2576-2587. 10.1002/jbm.b.34074
10. S. Saha, R. Kumar, K. Pramanik and **A.Biswas**. Interaction of Osteoblast –TiO2 Nanotubes in vitro: The Combinatorial Effect of Surface Topography and other Physico-Chemical Factors Governs The Cell Fate. Applied Surface Science. 449(2018)152-165.10.1016/j.apsusc.2018.01.160
11. P. Agrawal, K. Pramanik, **A. Biswas**. Chondrogenic differentiation of mesenchymal stem cells on silk fibroin: chitosan–glucosamine scaffold in dynamic culture. Regenerative medicine. 3(5)(2018)545- 558. 10.2217/rme-2017-0159
12. V. Vishwanath, K. Pramanika and **A. Biswas**. Development of a novel glucosamine incorporated silk fibroin-chitosan blend porous scaffolds for cartilage tissue engineering applications and its biocompatibility study using umbilical cord blood derived mesenchymal stem cells. Iran Polym J. 26(1)(2017)654-657. 10.1007/s13726-016-0492-y

13. V. Vishwanath, K. Pramanika and **A. Biswas**. Optimization andevaluation of silk fibroinchitosan freeze-dried porous scaffolds for cartilage tissue engineering application. Journal of Biomaterials Science, Polymer Edition..27(7)(2016)654- 657.10.1080/09205063.2016.1148303
14. N. Panda, **A. Biswas**, K. Pramaik and S. Jonnalagadda. Enhanced osteogenic potential of human mesenchymal stem cells on electrospun nanofibrous scaffolds prepared from eritasar silk fibroin. Journal of Biomedical Materials Research Part B: Applied Biomaterials. 103(5)(2015)971-982,2015. 10.1002/jbm.b.33272
15. N. Panda, A. Bissoyi, **A. Biswas** and K. Pramanik. Development of novel electrospun nanofibrous scaffold from P. ricini and A.mylitta silk fibroin blend with improved surface and biological properties. Material Science and Engineering C..48(1)(2015)521-532. 10.1016/j.msec.2014.12.010
16. N Panda, A Bissoyi, K Pramanik, **A Biswas**. Directing osteogenesis of stem cells with hydroxyapatite precipitated electrospun eri–tasar silk fibroin nanofibrous scaffold. Journal of Biomaterials Science, Polymer Edition. 25(13)(2014)1440-1457. 10.1080/09205063.2014.943548
17. **A.Biswas**, N. Panda and P. Bhattarai. "Preparation and characterization of yttria stabilized zirconia (8YSZ) nanofiber for medical application". . International Journal of Enhanced Research in Science Technology & Engineering. 3(7)(2014)75-88.
18. N. Panda, **A. Biswas**, K. Pramanik and L. Sukla. "Degradation Mechanism and Control of blended eri and tasar silk nano fiber". Applied Biochemistry and Biotechnology. 174(7)(2014) 2403-12.10.1007/s12010-014-1151-4
19. R. Mund, N. Panda, S. Nimesh and **A. Biswas**. "Novel titanium oxide nanoparticles for effective delivery of paclitaxel to human breast cancer cells". Journal of Nanoparticle Researc.16(12)(2014) pp.1-12. 10.1007/s11051-014-2739-x
20. N. Panda, K. Pramanik and **A. Biswas**. "Evaluation of the effect of addition of wollastonite on the mechanical strength, porosity and cell compatibility of different molecular weight chitosan". Journal of Tissue Engineering and Regenerative Medicineng. 6(1)(2012)188-189
21. AK Singh, K Pramanik, **A Biswas**, MgO enables enhanced bioactivity and antimicrobial activity of nano bioglass for bone tissue engineering application Materials Technology 34 (13) 818-826
22. N. Panda, K. Pramanik and **A. Biswas**. Evaluation of the effect of addition of wollastonite on the mechanical strength, porosity and cell compatibility of different molecular weight chitosan. Journal of Tissue Engineering and Regenerative Medicine. 6(1)(2012)188.
23. J. Satapathy, N. Panda, S. Sahu, K. Pramanik and **A. Biswas**, Preparation and characterization of electro spun pva-TiO_2 nanocomposite for Biomedical Application, International journal of Biological sciences and engineering, International Journal of Biological Sciences and Engineering 2(1)(2011)30-35.
24. Subrat Sahu, J. Satpathy, N. Panda, K. Pramanik and **A. Biswas**, Electrodephoretic Deposition of Chitosan on 316L SS and its Bioimplant Application, International journal of Biological sciences and engineering, International Journal of Biological Sciences and Engineering 2(1)(2011)30-35.
25. **A. Biswas,** I. Manna, U. K. Chatterjee, U. Bhattacharyya and J. Dutta Majumdar, Evaluation of Electrochemical Properties of Thermally Oxidized Ti-6Al-4V for Bioimplant application. Surface Engineering 25(2009)141-145.
26. **A. Biswas** and J. Dutta Majumdar, Surface Characterization and Mechanical Property Evaluation of Thermally Oxidized Ti-6Al-4V. Material characterization 60(6)(2009) 513- 518**.**
27. **A. Biswas**, PVS Srikant, I. Manna, U. K. Chatterjee and J. Dutta Majumdar, Chemical Oxidation of Ti-6Al-4V for Improved Wear and Corrosion Resistance, Surface Engineering 24(6)(2008)

442-446.

28. **A. Biswas**, L. Li, U.K. Chatterjee, I. Manna, S.K. Pabi and J. Dutta Majumdar, Mechanical and electrochemical properties of laser surface nitrided Ti–6Al–4V, Scripta Materialia *59* (2008) 239-242
29. J. Dutta Majumdar, U. Bhattacharyya, **A. Biswas** and I. Manna, Studies on thermal oxidation of Mg-alloy (AZ91) for improving corrosion and wear resistance, Surface and Coatings Technology 202(2008)3638-3642.
30. A. Biswas, B.L. Mordike, I. Manna and J. Dutta Majumdar, Studies on Laser Surface Melting of Al-11% Si Alloy, Lasers in Engineering 18(2008)95-106.
31. **A. Biswas**, U. Bhattacharjee, I. Manna and J. Dutta Majumdar, Surface Oxidation of Ti-6Al- 4V for Bio-implant Application, Surface Review and Letters 14 (2007) 597-600.

Book Chapters

1. Amit Biswas and Avishek Chakraborty, "Polycaprolactone-Based Nanocomposites for Electromagnetic Interference Shielding" in Polycaprolactone: Applications, Synthesis and Characterization by Nova, Science and Technology, 2022
2. Amit Biswas and Avishek Chakraborty, "Polycaprolactone-Based Shape Memory Polymers: A Review of Biomedical Applications" in Polycaprolactone: Applications, Synthesis and Characterization by Nova, Science and Technology, 2022

Conference proceedings papers

1. Akanksha Jha, *Amit Biswas ; " Synthesis and Coating of Bioglass-Chitosan Composite on Ti6Al4V for Orthopaedic and dental application " , Fourth International Conference on Materials Science (ICMS2024) , Department of Physics, Tripura University, Agartala
2. Konduru Ashok Kumar Raju, Amit Biswas. "A Comprehensive Review of Adaptive Antibacterial Coatings for Implants, Metallic and Herbal Coating Materials and Implant Biomaterial Characterization". International Conference on Processing and Characterization of Materials (ICPCM 2021), Processing and Characterization of Materials, Springer Proceedings in Materials. vol.26, PP.17-48, Dec 2021,10.1007/978-981-99-5509-1_2
3. Kiran Sebastian K, Amit Kumar Singh and Amit Biswas. "Construction and evaluation of physico-chemical and biological characteristics of chitosan/gelatin composite scaffolds reinforced with strontium doped 58S bioglass for bone tissue engineering application". 8th International Conference on Advanced Nanomaterials and Nanotechnology ICANN 2023, 29 Nov-1 Dec 2023, PP. 370
4. Sahely Saha, Amit Biswas & Krishna Pramanik. "Synthesis of TiO2 nanotubes over Ti6Al4V surface to improve osteocompatibility of bone implants". 8th International Conference on Tissue Science & Regenerative Medicine. Sep 2017,
5. Sahely Saha, Amit Biswas & Krishna Pramanik. "Synthesis of TiO2 nanotubes with improved biocompatibility and antibacterial property". 4th International Conference on Nanoscience and Nanotechnology (ICONN-2017). Aug 2017,
6. Sahely Saha, Bharati Tanty & Amit Biswas. "Surface modification of Titanium implants with antimicrobial coatings to prevent biofilm formation". 4th International Conference for Advanced Materials and Materials Processing (ICAMMP-IV). Nov2016
7. Trupti Patil, Sahely Saha & Amit Biswas. "Preparation and characterization of HAp coated Chitosan-Alginate PEC porous scaffold for bone tissue engineering". 2nd International conference on soft materials (ICSM-2016). Dec 2016,
8. R. Mund,N. Panda, A. Biswas, L Sukla. "Calcium Phosphate Nanoparticles Mediated Gene Therapy for Breast Cancer". 2nd International Conference on Tissue Engineering & Regenerative Medicines (ICTERM 2013). Nov2013,
9. N. Panda, K. Pramanik and A. Biswas. "Preparation and characterization of SF nanofiber

produced by Electro spinning method". BiomMedD 2010 – International Conference on Biomaterials Sinaia, Romania. Sep 2010

10. K. Pramanik, N. Panda, J. Satapathy and A. Biswas. "Aspergillus niser for the study of In vitro drug metabolism". International Conference on systems in medicine and biology, IEEE Conforence, IITKharagpur. Dec 2010,10.1109/ICSMB.2010.5735418