

Dr. Selvakumar Murugesan
Assistant Professor,
Department of Metallurgical and Materials Engineering,
National Institute of Technology Karnataka Surathkal,
Surathkal, Mangalore, Karnataka – 575025 INDIA
E-mail: murugesan_selva@nitk.edu.in
Phone: +91-824-247 3759 & E-mail: rjselva88@gmail.com



Grants, Awards & Honors'

- BRICS STI FRAMEWORK Grant with Brazil and China in the area of TissueRegeneration, 2023 – 2026
- India-Belarus Bilateral Grant with Belarusian State University in Hydrogels for Tissue Regeneration 2023 – 2025
- **Alexander von Humboldt fellowship** by Federal Germany at University of Bayreuth, Germany (2017-2020)
- Gandhian Young Technology Innovation (GYTI) award, 2016

Professional Experiences:

- **Guest Scientist** at the Institute of Biomaterials, University of Erlangen-Nuremberg from May-August, 2023.
- **Assistant Professor** at the National Institute of Technology Karnataka, India, Department of Metallurgical and Materials Engineering from December 2019 to present.
- **Alexander von Humboldt (AvH) Postdoctoral Fellow** at University of Bayreuth, Germany from September 2018 to December 2019.
- **Postdoctoral Scientist** at École Polytechnique de Montréal, Canada from September, 2016 to August 2018.

Editorial Assignments:

- Guest Editor in Open Chemistry - De Gruyter (2020)
- Special Issue Editor – Nanotechnology for Environmental Engineering, Springer (2019)

Academic Profile:

- **Ph. D**–Polymer Engineering *at* Indian Institute of Technology Kharagpur, 2016
- **M.Tech**-Materials Engineering (2011) *at* National Institute of Technology- Karnataka (NITK), Surathkal
- **B. Tech**- Polymer Technology (2009) *at* Anna University, Chennai

Products Developed (Innovations):

- Flexible, biodegradable and anti-microbial new advanced form of Intra Uterine Contraceptive Device (IUCD) - **Gandhian Young Technology Innovation (GYTI) award-2016**

Patent:

SubramanianB, **Selvakumar Murugesan** and Sujoy K Guha. Advanced form of biodegradable improved and flexible nano fabricated form of intra-uterine contraceptive device (IUCD), 3192/ASA/PP-2364/IIT,Kgp

Field of Expertise:

- Sustainable Polymers and Ceramics
- Mechanical Behavior of Materials
- Nano biomaterials and Nanocomposites
- Polymer Coating

Key Publications:

1. Shetty, S., **Selvakumar Murugesan.**, Salehi, S., Pellert, A., Scheibel, M., Scheibel, T., &Anandhan, S. (2022). Evaluation of piezoelectric behavior and biocompatibility of poly (vinylidene fluoride) ultrafine fibers with incorporated talc nanosheets. *Journal of Applied Polymer Science*, 2022 139(29), e52631.
2. Padil, Vinod VelloraThekkae, **Selvakumar Murugesan**, Rafael Torres-Mendieta, Stanislaw Wacławek, Jun Young Cheong, Miroslav Cernik, and Rajender S. Varma. Sustainable and Safer Nanoclay Composites for Multifaceted Applications. *Green Chemistry*. 2022, 24(8), 3081-3114.
3. Purabi Bhagabati and **Selvakumar Murugesan**. Insight into Mechanical, Thermal and Electrical Properties of Peroxide Cured Chlorinated Polyethylene/Ethylene Methacrylate Copolymer Blend Vulcanizates. *ACS Omega*. 2021; 6(31), 20181-20191
4. **Selvakumar Murugesan** and Thomas Scheibel. Chitosan-based Nanocomposite for Medical Applications. *Journal of Polymer Science*. 2021; 59 (15), 1610-1642
5. George, G, Mahendran, A, **Selvakumar Murugesan**, Anandhan, S. Influence of multiwalled carbon nanotubes on the structure and properties of poly(ethylene-co-vinyl acetate-co-carbon monoxide) nanocomposites. *Polymer Composites*.2021; 42 (9), 4412-4423
6. **Selvakumar Murugesan** and Thomas Scheibel. Copolymer/Clay Nanocomposites for Biomedical Applications. *Advanced Functional Material*. 2020;30 (17), 1908101
7. Subramanian, Bhuvaneshwaran, ArunPrabhu Rameshbabu, Kuntal Ghosh, Pradeep K. Jha, RakhiJha, **Selvakumar Murugesan** and Santanu Chattopadhyay. Impact of styrene maleic anhydride (SMA) based hydrogel on rat fallopian tube as contraceptive implant with selective antimicrobial property. *Materials Science and Engineering: C*. 2019; 94, 94-107
8. **Selvakumar Murugesan**,Das B, Dhara S and Chattopadhyay S.Structurally Tuned Antimicrobial Mesoporous Hydroxyapatite Nanorods by Cyclic Oligosaccharides Regulation ToRelease a Drug for Osteomyelitis.*ACS Crystal Growth &Design*. 2017; 17(2), 433-445.
9. **Selvakumar Murugesan**, Jaganathan SK, Nando GB and Chattopadhyay S. Synthesis and characterization of novel polycarbonate based polyurethane/polymer wrapped hydroxyapatite nanocomposites: mechanical properties, osteoconductivity and biocompatibility. *Journal of Biomedical Nanotechnology* 2015; 11(2), 291-305.
10. KarthikSampath, Avijit Jana, **Selvakumar Murugesan**, Venkatesh Yarra, Amrita Paul, Sheriff Shah and Pradeep N.D. Singh. Coumarin Polycaprolactone Polymeric Nanoparticles: Light and Tumor microenvironment activated Cocktail Drug Delivery. *Journal of Material Chemistry B* 2017; 5(9), 1734-1741.
11. Panja S, Nayak S, Ghosh S, **Selvakumar Murugesan** and Chattopadhyay S. Self-assembly of a biodegradable branched PE-PCL-b-PEC amphiphilic polymer: synthesis, characterization and targeted delivery of doxorubicin to cancer cells. *RSC Advances* 2014;4(93), 51766-51775.
12. Sathishkumar G, Jha PK, Vignesh V, Rajkuberan C, Jeyaraj M, **Selvakumar Murugesan**, Jha R and Sivaramakrishnan S. Cannonball fruit (*Couroupitaguianensis*, Aubl.) extract mediated synthesis of gold nanoparticles and evaluation of its antioxidant activity. *Journal of Molecular Liquids*. 2016, 31(215), 229-236.
13. Sathishkumar G, Bharti R, Jha PK, **Selvakumar Murugesan**, Dey G and Jha R. Dietary flavone Chrysin (5, 7-Dihydroxyflavone ChR) functionalized highly-stable metal nanoformulations for improved anticancer applications. *RSC Advances*. 2015; 5(109), 89869-89878.
14. Balaji A, Jaganathan S, Vellayappan M, John A, Subramanian A and **Selvakumar Murugesan**. Prospects of common biomolecules as coating substances for polymeric biomaterials. *RSC Advances* 2015; 5(85), 69660-69679.
15. Jaganathan SK, Supriyanto E, **Selvakumar Murugesan**, Balaji A and Asokan MK. Biomaterials in cardiovascular research: applications and clinical implications. *Biomed Res Int* 2014; 2014.
16. Jaganathan SK, Mohandas H, Sivakumar G, Kasi P, Sudheer T, **Selvakumar Murugesan** and Avineri Veetil S. Enhanced Blood Compatibility of Metallocene Polyethylene Subjected to Hydrochloric Acid Treatment for Cardiovascular Implants. *Biomed Res Int* 2014; 2014.
17. Balaji A, Vellayappan MV, John AA, Subramanian AP, Jaganathan SK and **Selvakumar Murugesan**. Biomaterials based nano-applications of Aloe vera and its perspective: a review. *RSC Advances*. 2015; 5, 86199-86213.

18. Vellayappan MV, Balaji A, Subramanian AP, John AA, Jaganathan SK and **Selvakumar Murugesan**. Tangible nanocomposites with diverse properties for heart valve application. *Science and Technology of Advanced Materials* 2015; 16, 33504-33510.
19. Vellayappan MV, Balaji A, Subramanian AP, John AA, Jaganathan SK and **Selvakumar Murugesan**. Multifaceted prospects of nanocomposites for cardiovascular grafts and stents. *International journal of nanomedicine* 2015; 10, 2785-2789.

Edited Book:

1. Progress in Polymer Research for Biomedical, Energy and Specialty Applications by S. Anandan, **Selvakumar Murugesan**, and Arunjunairaj Mahendran. CRC Press, Boca Raton, USA, 2022BocaRaton, ISBN 9781032061009

International Conferences:

1. **Selvakumar Murugesan**, R.Lakshmi, S.Ramachandran, L.Rajaramanathan, P. Ramachandran and Sriram Ramdass Development of Sustainable Rubber Composites using Tapioca Flour as filler for Automobile Applications. 2022 SpringMeeting, ACS Rubber Division, April 26-29, Cleveland, USA
2. **Selvakumar Murugesan** and Thomas Scheibel. Preparation and Characterization of Hybrid Bioink for the 3D bioprinting from Spider Silk/Collagen/ Hyaluronic Acid for Tissue Engineering. **Networking Meeting of the Alexander von Humboldt Foundation, Bonn – Germany, November 2018.**
3. **Selvakumar Murugesan**, Golok B. Nando and Santanu Chattopadhyay. Ornamenting Biomimetic Antimicrobial Polyurethane Scaffolds with Bismuth-doped Single Crystalline Hydroxyapatite for Osteogenesis and Guided Bone Regeneration. **Young Scientists Meet-2015, India International Science Festival, New Delhi-India.**
4. **Selvakumar Murugesan**, Jaganathan SK, Golok B. Nando, Chattopadhyay S. Structure Property Relationship of Novel *In-Situ* Prepared Thermoplastic Polyurethane/Hydroxyapatite Nanocomposites with Improved Antithrombotic Property for Biomedical Applications at 2014 **International Elastomer Conference-186th Technical Meeting & Educational Symposium-I, Nashville, TN, USA.**
5. **Selvakumar Murugesan**, Santanu Chattopadhyay and Golok B. Nando.Synthesis Characterization of Novel Segmented Polyurethane/Hydroxyapatite Nanocomposites.*International Conference on Rubber and Rubber-like Materials (ICRRM)* 2013, IIT Kharagpur, India
6. **Selvakumar Murugesan**, G.Srinivasrao. Development of nanostructured polymer coatings based on Thermoset/clay nanocomposites – an Overview. *8th International Symposium for Surface Protective Coating and paint Expo 2011-The Society for Surface Protective Coatings India - SSPC at New Delhi-INDIA.*

Declaration

I hereby declare that the above-furnished details are true to the best of my knowledge.

Thanking You,

Yours sincerely,

Place: India

Date: 05-12-2023

(**Selvakumar Murugesan**)