###### Resume

|  |  |
| --- | --- |
| **Thanka Rajan. S., PhD.,** | |
| ***Permanent Address***  12-6C(1), Ettukootu Therivilai,  Agasteeswaram (P.O)- 629 701  Kanyakumari district  Tamil Nadu, INDIA | 1435  E-mail: strajan984@gmail.com  Phone:+918124240202 |

###### Career Objective

|  |
| --- |
| A Carrier that requires a background in multidiscipline- Thin Film fabrication/ Corrosion Studies/ Nanoparticle synthesis and Materials characterisation. |

###### Carrier summary

###### Research Experience

|  |  |
| --- | --- |
| Period | Description |
| March 2020 to Till date | Postdoctoral Fellow, Department of Applied Mechanics, Indian Institute of Technology Madras (IIT-M), Chennai |
| April-2017 to August 2019 | CSIR-Senior Research Fellow (SRF), CSIR – Central Electrochemical Research Institute |
| March-2013 to  March-2017 | Project Assistant-II, CSIR – Central Electrochemical Research Institute. |
| Sept-2009 to May-2010 | M.Tech. Project: Growth and Characterization of Aluminium doped ZnO Nanostructures using Nanoparticle Assisted Pulsed Laser Deposition (NAPLD**).** Indian Institute of Technology Madras (IIT-M), Chennai. |

###### PUBLICATION & CITATION INDEX (Google Scholar)

* *International Journals*: **22**
* *Total Citations*: **242**
* h & i10-index: **10** & **10**

###### list of publications

1. **S Thanka Rajan**, Mitun Das, A Arockiarajan,In vitro biocompatibility and degradation assessment of tantalum oxide coated Mg alloy as biodegradable implants, *Journal of Alloys and Compounds*, 905, 2022, 164272. DOI: 10.1016/j.jallcom.2022.164272. **IF-** **5.3**
2. **S Thanka Rajan**, Mitun Das, A Arockiarajan,Biocompatibility and corrosion evaluation of niobium oxide coated AZ31B alloy for biodegradable implants, *Colloids and Surfaces B: Biointerfaces,* 212, 2022, 112342. DOI: 10.1016/j.colsurfb.2022.112342. **IF- 5.2**
3. **S. Thanka Rajan**, B Subramanian, A Arockiarajan, A comprehensive review on biocompatible thin films for biomedical application, *Ceramics International*, 48, 2022, 4377-4400 DOI: 10.1016/j.ceramint.2021.10.243. **IF-** **4.5**
4. **S. Thanka Rajan**, A. Arockiarajan, Thin film metallic glasses for bioimplants and surgical tools: A review, *Journal of Alloys and Compounds,* 876, 2021, 159939. DOI: [10.1016/j.jallcom.2021.159939](https://doi.org/10.1016/j.jallcom.2021.159939). **IF-** **5.3**
5. **S. Thanka Rajan**, Mitun Das, P. Sasi Kumar, A. Arockiarajan, B. Subramanian, Biological performance of metal metalloid (TiCuZrPd:B) TFMG fabricated by pulsed laser deposition, *Colloids and Surfaces B: Biointerfaces,* 202, 2021, 111684. DOI: [10.1016/j.colsurfb.2021.111684](https://doi.org/10.1016/j.colsurfb.2021.111684). **IF- 5.2**
6. **S. Thanka Rajan**, Anusha Thampi V. V, M. Terada-Nakaishi, Peng Chen, T. Hanawa, A.K. Nandakumar, B. Subramanian, Zirconium-based metallic glass and Zirconia Coatings to Inhibit Bone Formation on Titanium, *Biomedical Materials*, 15, 2020, 065019.DOI: [10.1088/1748-605X/aba23a](https://doi.org/10.1088/1748-605X/aba23a). **IF-** **3.7**
7. **S. Thanka Rajan**, A. Bendavid, B. Subramanian, Cytocompatibility assessment of Ti-Nb-Zr-Si thin film metallic glasses with enhanced osteoblast differentiation for biomedical applications, *Colloids and Surfaces B: Biointerfaces* 173, 2019, 109–120. DOI: [10.1016/j.colsurfb.2018.09.041](https://doi.org/10.1016/j.colsurfb.2018.09.041).  **IF- 5.2**
8. **S. Thanka Rajan**, V.V. Anusha Thampi, K. Sri Kesavan, B. Subramanian, Surface functionalisation and antibacterial activity of biomedical textiles with metal oxides-carbon nanocomposites, *Ceramics International*, 45, 2019, 5210-5217. DOI: [10.1016/j.ceramint.2018.11.216](https://doi.org/10.1016/j.ceramint.2018.11.216).  **IF-** **4.5**
9. Subramanian B, **Thanka Rajan S**, P. J. Martin, Vijay Vaithilingam, Penelope A. Bean, Margaret D. M. Evans, and A. Bendavid, Biomineralization of osteoblasts on DLC coated surfaces for bone implants, *Biointerphases* 13, 2018, 041002.DOI: [10.1116/1.5007805](https://doi.org/10.1116/1.5007805) **IF-** **2.45**
10. **ST Rajan**, M Karthika, U Balaji, A Muthappan, B Subramanian, Functional finishing of medical fabrics using CeO2/allicin nanocomposite for wound dressings, *Journal of Alloys and Compounds* 695, 2017, 747-752.DOI:[10.1016/j.jallcom.2016.06.241](https://doi.org/10.1016/j.jallcom.2016.06.241) **IF-** **5.316**
11. **ST Rajan**, AKN Kumar, Takao Hanawa, B Subramanian, Materials properties of ion beam sputtered Ti-Cu-Pd-Zr thin film metallic glasses, *Journal of Non-Crystalline Solids*, 461, 2017, 104–112.DOI: [10.1016/j.jnoncrysol.2017.01.008](http://dx.doi.org/10.1016/j.jnoncrysol.2017.01.008) **IF-** **3.5**
12. P. Ramamurthy, K. P. Chellamani, B. Dhurai, **S. Thanka Rajan**, B. Subramanian, Elango Santhini, Antimicrobial Characteristics of Pulsed Laser Deposited Metal Oxides on Polypropylene Hydroentangled Nonwovens for Medical Textiles, *Fibres & Textiles in Eastern Europe* 25, 2(122): 2017, 112-119. DOI: 10.5604/12303666.1228192 . **IF-1.04**
13. **ST Rajan**, M Karthika, A Bendavid, B Subramanian, Apatite layer growth on glassy Zr48Cu36Al8Ag8 sputtered titanium for potential biomedical applications, *Applied Surface Science*, 369, 2016, 501-509.DOI:[10.1016/j.apsusc.2016.02.054](https://doi.org/10.1016/j.apsusc.2016.02.054) **IF-** **6.7**
14. VVA Thampi, **ST Rajan**, K Anupriya, B Subramanian, Functionalisation of fabrics with PANI/CuO nanoparticles by precipitation route for anti-bacterial applications, *Journal of Nanoparticle Research* 17 (1), 2015, 57.DOI:[10.1007/s11051-014-2853-9](https://ui.adsabs.harvard.edu/link_gateway/2015JNR....17...57T/doi:10.1007/s11051-014-2853-9) **IF-** **2.25**
15. B. Subramanian, S Maruthamuthu, **ST Rajan**, Biocompatibility evaluation of sputtered zirconium-based thin film metallic glass-coated steels, *International journal of nanomedicine* 10, 2015, 17. DOI: 10.2147/IJN.S79977 **IF-** **6.4**
16. **ST Rajan**, B Subramanian, AKN Kumar, M Jayachandran, MSR Rao, Fabrication of nanowires of Al-doped ZnO using nanoparticle assisted pulsed laser deposition (NAPLD) for device applications, *Journal of Alloys and Compounds* 584, 2014, 611-616. DOI: [10.1016/j.jallcom.2013.09.046](https://doi.org/10.1016/j.jallcom.2013.09.046) **IF-** **5.316**
17. **ST Rajan**, AKN Kumar, B Subramanian, Nanocrystallization in magnetron sputtered Zr–Cu–Al–Ag thin film metallic glasses, *Cryst EngComm* 16 (13), 2014, 2835-2844.DOI: [10.1039/C3CE42294A](https://doi.org/10.1039/C3CE42294A)**. IF-** **3.54**
18. B. Subramanian, **S. Thanka Raja**n, A.K. Nandakumar, A. Kobayashi, S. Yugeswaran, M. Jayachandran, Antimicrobial activity of 316 stainless-steel with Zr–Cu–Al–Ag with thin film metallic glass, *Frontier of applied plasma technology* 7, 2014, 61-64.
19. B Subramanian, KA Priya, **ST Rajan**, P Dhandapani, M Jayachandran, Antimicrobial activity of sputtered nanocrystalline CuO impregnated fabrics, *Materials Letters* 128, 2014, 1-4.DOI: [10.1016/j.matlet.2014.04.056](http://dx.doi.org/10.1016/j.matlet.2014.04.056). **IF-** **3.4**
20. N Manjula, G Selvan, **ST Rajan**, A Ayeshamariam, S Muthuraja, et al. Properties of SnO2-TiO2 composite films deposited using Jet Nebuliser Spray pyrolysis for gas sensors, *Materials Science Forum* 832, 2015, 94-101. DOI: [10.4028/www.scientific.net/MSF.832.94](https://doi.org/10.4028/www.scientific.net/MSF.832.94)
21. S Rani, J Shanthi, **ST Rajan**, A Ayeshamariam, M Jayachandran, Studies on the Influence of In and Zn Doping on the CdSe Based Photo Electro Chemical (PEC) Solar Cells Using Electron Beam Evaporation Technique, *Materials Science Forum* 832, 2015, 84-93. DOI: [10.4028/www.scientific.net/MSF.832.84](https://doi.org/10.4028/www.scientific.net/MSF.832.84)
22. S Rani, **ST Rajan**, J Shanthi, A Ayeshamariam, M Jayachandran, Review on the Materials Properties and Photoelectrochemical (PEC) Solar Cells of CdSe, Cd1-xZnxSe, Cd1-xInxSe, Thin Films, *Materials Science Forum* 832, 2015, 1-27. DOI: [10.4028/www.scientific.net/MSF.832.1](http://dx.doi.org/10.4028/www.scientific.net/MSF.832.1)

###### Patents

Biodegradable Amorphous Alloy Thin Films for Biomineralization and a Process for the Preparation thereof, 201611022422 (Provisional application) 30/06/2016, B. Subramanian, **S. Thanka Rajan,** M. Karthika

###### specialisation

* Materials Science
* Thin films
* Thin-film fabrication techniques.

###### Awards

* Award of **CSIR-Senior Research Fellow (SRF)** by CSIR
* **Ist prize** in a poster presentation (International Conference on Macromolecules: Synthesis, Morphology, Processing, Structure, Properties and Applications (ICM-2016), 13 to 15, May 2016)
* **Best poster** award in a poster presentation (Kalam Young Researchers Conference (KYRC -01) October 16, 2017, Karaikudi)
* **IIIrd Prize** in Oral presentation (National Science Day –27th February 2019, CSIR- Central Electrochemical Research Institute)
* **IInd Prize** in a poster presentation (3rd International Conference on Applied Nanoscience & Nanotechnology (ICANN-2019)" Alagappa University, Karaikudi, 18-19th March 2019

###### Technical Skills

|  |  |
| --- | --- |
| Experience to handle vacuum instruments (Sputtering, Pulsed laser deposition (PLD), Electron beam evaporation and thermal evaporation) | |
| Analytical | Electrospinning, Scanning Electron microscopy, Transmission Electron Microscopy, UV-vis, PL spectroscopy, XRD, Raman spectroscopy, FTIR, Electrochemistry (Cyclic Voltammetry, impedance, Tafel, etc). |
| Software | Cyclic voltammetry Software and Corrosion studies (Impedance, Tafel and ZSimpwin) Crystallographic software analysis (Xpert high score, Origin, etc.) |

###### Education

|  |  |
| --- | --- |
| Year | Degree |
| 2019 | **PhD - CSIR-Central Electrochemical Research Institute, Academy of Scientific & Innovative Research (AcSIR)** |
| 2010 | **M.Tech** – Nanotechnology, Kalasalingam University, With CGPA- 7.59 |
| 2007 | **M. Sc**. – Physics, VHNSN Collège, Madurai Kamaraj University, with an aggregate of 70.6%. |
| 2005 | **B. Sc**. – Physics, Vivekananda College, Manonmanium Sundranar University, with an aggregate of 51.5%. |
| Education | |
| PhD Title: | Fabrication and Study of Thin Film Metallic Glasses (TFMG) for Bioimplant Applications |

**Seminars / Conferences (ORAL AND POSTERS)**

|  |
| --- |
| 1. Assessment of Assimilation Inhibition on Ti coated with Zr based Thin Films in a Rat Model, **S. Thanka Rajan**, Takao Hanawa, B. Subramanian, ***3rd International Conference on Applied Nanoscience & Nanotechnology*** (ICANN-2019), Alagappa University, Karaikudi during 18-19th March, 2019. (2nd prize in poster presentation) 2. In-vivo Investigations on assimilation of bone- Titanium implant interface with Zirconium based thin films, **S. Thanka Rajan** and B. Subramanian, ***National Science Day -2019***, CSIR-CECRI, Karaikudi, 27 Feb, 2019. (3rd prize in oral presentation) 3. In-vitro Investigations of Assimilation Inhibition on Ti with Zirconium Based Thin Films, S. Thanka Rajan, Anusha Thampi VV, Takao Hanawa, Peng Chen, B. Subramanian, ***International symposium on Advances in Electrochemical Science and Technology-12 (iSAEST-12)*,** Hotel Trident, Chennai, 8 –10th Jan 2019. 4. *Invitro* corrosion and biocompatibility assessment of Ti alloy with sputtered Ti-Nb-Zr-Si thin film metallic glasses, **S. Thanka Rajan** and B. Subramanian, ***National Congress on Corrosion Control***, Mayfair Convention, Bhubaneshwar, 05 to 07 Dec. 2018. 5. Biological evaluation of Ti-Nb-Zr-Si thin film metallic glasses on titanium, **S. Thanka Rajan**, B. Subramanian, ***National Convention of Electrochemist (NCE-20)*** VIT University, 7,8 June 2018 6. Inhibition of assimilation of Ti with zirconium based thin films, **S. Thanka Rajan**, Anusha Thampi VV, Takao Hanawa, Peng Chen, B. Subramanian\*, ***Advances in Functional and Exotic Materials (MRSI) and 29th Annual General Meeting*,** Bharathidasan University, Tiruchirappalli, India February 14 -16, 2018. 7. Biofunctionalization of Titanium for Inhibition of Assimilation Using Zirconium Based Metallic Glass Coatings by Sputtering, **S. Thanka Rajan**, Anusha Thampi VV, Takao Hanawa, B. Subramanian, "***6th Asian Biomaterials Congress: ABMC6***", October 25-27, 2017. Thiruvananthapuram, India 8. Bioactivity of Ti with Sputtered Ti-Nb-Zr-Si thin film metallic glasses for implants, **S. Thanka Rajan,** C.V. Muraleedhran, B. Subramanian."***6th Asian Biomaterials Congress: ABMC6***", October 25-27, 2017. Thiruvananthapuram, India 9. Biofunctionalization of Titanium for Inhibition of Assimilation Using Zirconium Based Metallic Glass Coatings by Sputtering, **S. Thanka Rajan**, Anusha Thampi VV, Takao Hanawa, B. Subramanian, ***Kalam Young Researchers Conference (KYRC***) -01 October 16, 2017, Karaikudi 10. Bioactivity and *in vitro* corrosion on Ti with Zr-Cu-Al-Ag metallic glass thin films for bio implants, **S. Thanka Rajan**, B. Subramanian, ***Eighteenth National Congress on Corrosion Control***, 24.02.16 to 26.02.16 (Oral presentation). 11. Hydrothermal Synthesis of Carbon nanostructures from Honey- Fe2O3 composites impregnated fabrics bactericidal activity, **S. Thanka Rajan** and B. Subramanian, ***Nineteenth National Convention of Electrochemists*** (NCE-19), 28.03.16 to 29.03.16. 12. Evaluation of antibacterial activity of TiO2-C nanocomposite coated fabrics**, S. Thanka Rajan**, Anusha Thampi VV, Sri Kesavan, B. Subramanian, ***International Conference on Macromolecules: Synthesis, Morphology, Processing, Structure, Properties and Applications,*** (ICM-2016), 13 to 15, May 2016. (**Ist prize** in poster presentation) 13. Biocompatibility Studies on Implantable substrates modified with PECVD - Diamond-Like Carbon, **S. Thanka Rajan**, Anusha Thampi. VV, Avi Bendavid, B. Subramanian, ***International symposium on Advances in Electrochemical Science and Technology***, (ISAEST- 2016, 8-10 Dec 2016) (Oral presentation). 14. Fictionalization of fabrics with Polymer/ ZnO nanoparticles for antibacterial activity, **S. Thanka Rajan**, P. Dhandapani, S. Maruthamuthu, B.Subramanian\*, ***International Conference on Advanced Functional Materials*** (ICAFM-2014) at Muscot hotel, Tiruvananthapuram Feb 20 -21, 2014. 15. Zr48Cu36Al8Ag8 Thin film Metallic Glasses coated Titanium for Bioimplants, **S. Thanka Rajan**, P. Dhandapani, S. Maruthamutu, B. Subramanian, ***17th National Congress on Corrosion control*** on Aug 21-23, 2014 at CSIR CECRI, Karaikudi. 16. Biocompatibility evaluation of sputtered Zr-based thin film metallic glasses for implants. **S. Thanka Rajan**, A.K. Nandakumar, B. Subramanian ***(National Conference on*** ***Challenges in biomaterials Research***) Dec. 23, 24-2013. 17. Growth of Green emitting ZnO Nano bristles from Zn metal. Juanita saroj J; Dhivya s; **Thanka Rajan. S**; Srikumar S.R; Kottaisamy M. (ICNM 2009) April 6 - 8 2009 Kottyam, India. 18. ***International Conference on*** ***Advanced Manufacturing and Automation***. (INCAMA 2009), March 26 to 28, 2009 Department of Mechanical Engineering, Kalasalingam University, Tamil Nadu, India. 19. National Seminar on ***Nanotechnology Energy and Environmental Applications*** (NTEEA 2009), April- 9, 2009 at Department of Chemistry, Kalasalingam University, Tamil Nadu. |

**Additional skills**

Languages Tamil - mother tongue

English - fluent writing and speaking

Hindi - basic level

Personal abilities: Good knowledge in analytical techniques

Self-motivated with the ability to work independently and to participate

creatively in collaborative and frequently interacting teams of researchers

**Personal Details**

Fathers Name : T. Senthil Perumal

Date of birth : 05-09-1984

Sex : Male

Nationality : Indian

Marital status : married

**Reference**

1. Prof. AROCKIARAJAN A

Professor, Dept. of Applied Mechanics

Indian Institute of Technology Madras

Chennai 600 036 INDIA

Phone : + 91 44 2257 4070, +91 9884953470

Email: [aarajan@iitm.ac.in](mailto:aarajan@iitm.ac.in)

2. Dr. B. Subramanian, Senior Principal Scientist

Electrochemical Metal Finishing Technology Division

CSIR-Central Electrochemical Research Institute

Karaikudi-630 003. Tamilnadu, India.

Tel: 914565 -241538

Mobile : +91 9443465544

Email: [bsmaniancecri@gmail.com](mailto:bsmaniancecri@gmail.com)

3. Dr. A K NANDA KUMAR

Assistant Professor (SG) – Department of Sciences - Physics

Amrita Vishwavidyapeetham,

Ettimadai Coimbatore – 641112, India.

Tel: 9524698610 • Ó 0422-2685000 • fax number

Email: [ak\_nandakumar@cb.amrita.edu](mailto:ak_nandakumar@cb.amrita.edu)

[aknk27@gmail.com](mailto:aknk27@gmail.com) , [aknk27@yahoo.com](mailto:aknk27@yahoo.com)

**Declaration**

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

Place: Chennai ****

Date: 21.04.2022  **(S. Thanka Rajan)**