


# Dr. Amudha Sivalingam

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amudha.sivalingam@gmail.com 

To obtain a position as a college professor where I can utilize my extensive knowledge and teaching skills to inspire and engage students, contribute to the growth and development of the academic community, and further my research and scholarship in the field of Material science and Biomaterials and cultivate a passion for lifelong learning among students while advancing the boundaries of knowledge in my field through high-quality research and publications.

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## Experience

JAN 2015-MARCH 2023

**Research Scholar**/Crystal Growth Center,  
Anna University, Chennai

- Conducting research in the field of Biomaterials. This includes identifying research problems, designing experiments, collecting and analyzing data, and interpreting research findings.
- Publish the research findings in academic journals and present them at conferences.
- Handled labs for undergraduate or graduate-level courses in Anna University Chennai.
- Volunteered for organizing National and International level Symposium/Seminar/Conference at Crystal Growth Center, Anna University Chennai during doctoral studies.

JUNE 2009 TO MAY 2013

**Assistant Professor**/Department of Physics,  
Bharathiyar Arts & Science College for Women, Deviyakurichi, Salem

- Responsible for teaching undergraduate, Post graduate and M.Phil courses in Department of Physics. Involved developing syllabi, delivering lectures, leading discussions, and grading assignments and exams.
  - Engaged in research and scholarship in Physics and secured Periyar university guide ship for M.Phil program
  - Engaged in professional development to keep up-to-date with development activities like participating in conferences and collaborating with other colleagues.
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## Research Experience

Doctor of Philosophy (Ph.D)/Crystal Growth Centre,  
Anna University, Chennai

Supervisor: Dr. S. Narayana Kalkura

Title : Investigation of physicochemical and biological properties of metal ion doped 45S5  
bioactive glass and their polymer composites

Master of Philosophy (M.Phil)/Department of Physics,  
Jamal Mohammed College, Tiruchirapalli

Title: Evaluation of binding energy for OOD-OD metal nuclides using semi-empirical mass  
formula.

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## Research Interest

### Biomaterials for orthopedic application

- Preparation of bioactive glass like silica calcium phosphate using sol gel method in various metal ion doping.
- Preparation of metal ion doped hydroxyl apatite biomaterial by hydrothermal method.

### Composite for Hard and soft tissue engineering

- Preparation of bioglass and biopolymer composite like chitosan, silk, gelatin, pectin, and hyaluronic acid using freeze drying techniques.

### Surface modification for composite

- Preparation of bioglass chitosan composite coated by gamma irradiation.

### Characterization of bio material and composite

- Morphological, optical, mechanical and structural characterization of different materials and composite to understand surface - property relations
- Biological study like Hemolysis, swelling study, antimicrobial activity, bioactivity, drug release, Cell culture.

### Instrument handled

- Zeta Potential and DLS
  - UV
  - FTIR
  - Optical microscope
  - Ultra sonicator (bath type and probe type)
  - Freeze dryer
  - Centrifuge
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## Education

2015-2023

**Doctor of Philosophy (Ph.D)**/Department of Physics,  
Crystal Growth Center, Anna University, Chennai, Tamilnadu.

2008-2009

**Master of Philosophy (M.Phil)**/Department of Physics,  
Jamal Mohammed College, Tiruchirapalli, Tamilnadu.  
Percentage 82%

2006-2008

**Master of Science (M.Sc)**/Department of Physics,  
Bishop Heber College, Tiruchirapalli, Tamilnadu.  
Percentage 72%

2003-2006

**Bachelor of Science (B.Sc)**/Department of Physics,  
Nehru Memorial College, Tiruchirapalli, Tamilnadu.  
Percentage 71%

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## Award

DST PURSE – II -2016 to pursue Ph.D. in Anna University  
(Proceedings No: 9500/PD2/2016).

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## Publications

1. **S. Amudha**, J. Ramana Ramya, K. Thanigai Arul, A. Deepika, P. Sathiamurthi, B. Mohana, K. Asokan, Chung-Li Dong, S. Narayana Kalkura, “Enhanced mechanical and biocompatible properties of strontium ions doped mesoporous bioactive glass”, Composites Part B 196, 1-11, 2020. (**Impact Factor: 11.32**) –Scopus (Q1)
2. J. Ramana Ramya, K. Thanigai Arul, P. Sathiamurthi, E.A.K. Nivethaa, S. Baskar, **S. Amudha**, B. Mohana, K. Elayaraja, Sarath Chandra Veerla, K. Asokan, S. Narayana Kalkura, “Gamma irradiated Poly (methyl methacrylate)-Reduced Graphene Oxide composite thin films for multifunctional applications”, Composites Part B, 163, 752-760, 2019 (**Impact Factor: 11.32**)-Scopus (Q1)

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## Publications (Under Review)

1. **S. Amudha**, J. Ramya Ramana; K. Thanigai Arul, P. Sathiamurthi, B. Mohana, Chung Dong Li, A. Arockia Rajan, S. Narayana Kalkura “Synthesis of novel Silver ions doped 45S5 Bioactive Glass with highly Interconnected Pores for biomedical applications”, Journal of the European Ceramic Society. (**Under Review**).
2. **S. Amudha**, S. Malathi, J. Ramana Ramya, K. Thanigai Arul, Chung Li Dong, P. Sathiamurthi,; A. Arockiarajan, Moorthybabu Sridharan, S. Narayana Kalkura “Fabrication of self-assembled cross linked free chitosan/ mesoporous strontium bioglass composite”, Carbohydrate Polymers. (**Under Review**).
3. **S. Amudha**, S. Malathi, J. Ramana Ramya, K. Thanigai Arul, Chung Li Dong, P. Sathiamurthi, Shanthini, GM, A. Arockiarajan, Moorthybabu Sridharan, S. Narayana Kalkura, “Cross-linker free multilayered CS/AgBG scaffold for chronic wound healing and drug delivery applications”, Applied surface Science. (**Manuscript ready**)

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## Conferences

1. **Amudha, S**, Shanthini, GM, Ramana Ramya, J, & Narayana Kalkura, S, 2016, ‘Physicochemical property of silver doped Bioglass synthesized by sol-gel method’, Twenty Sixth National Seminar on Crystal Growth and Epitaxy, held at Crystal Growth Centre, Anna University, Chennai, between March 14 & 15, 2016
2. **Amudha, S**, Baskar, S, Shanthini, GM, Ramana Ramya, J, Mohana, B, Olga V Frank-Kamenetskaya & Narayana Kalkura, S, 2016, ‘Physicochemical and biological evaluation on chitosan-silver doped 45S5 bioglass’ on International Symposium for Research Scholars on Metallurgy, Material science and Engineering held at IIT Madras, Chennai, India, during December 21-23, 2016
3. **Amudha, S**, Ramana Ramya, J, Catherine ann Martin, Mohana, B, Saranya, S, Baskar, S & Narayana Kalkura, S, 2018, “Effect of Silver Doped 45S5 Bioactive Glass and Evaluation of the Chitosan/Silver Doped 45S5 Bioglass for Bone Implant” in the CSIR Sponsored International Conference on “Advances in Material Science and Engineering for Societal Applications (ICAMSE-2018)” held at Academy of Maritime Education and Training (AMET), Chennai, conducted on 2-3 March 2018.
4. **Amudha, S**, Ramana Ramya, J, Nivethaa, EAK, Catherine Ann Martina, Mohana, B, Saranya, S & Narayana Kalkura, S, ‘Biodegradable Chitosan/ SrO doped 45S5 bioactive glass Ceramic composite scaffold for bone regeneration and drug delivery application’ “International Workshop on Crystalline Materials and Applications” held at Crystal Growth Centre, Anna University, Chennai, organized during January 03-05, 2019.
5. **Amudha, S**, Ramana Ramya, J & Narayana Kalkura, S, 2020, ‘Preparation of Biodegradable Chitosan/Strontium Doped Mesoporous Bioactive Glass Composites for Soft Tissue Engineering and Drug Deliver Application’, International Virtual Conference on Biomedical Materials Innovation (ICBMI-2020), Coimbatore, Tamilnadu, during 06th – 09th December 2020.
6. **Amudha, S**, Ramana Ramya, J, Mohana, B, Sathiamurthi, P & Narayana Kalkura, S, 2021, ‘Silver doped mesoporous 45S5 bioactive glass composites with biodegradable chitosan for soft tissue engineering and drug deliver application’ International conference on novel engineering materials for biomedical, energy, environment, sensing and other applications-2021, held at National Institute of Technology, Tiruchirappalli-15, during 11th -13th March 2021.

## Referees

Prof. S Narayana Kalkura  
Professor  
Crystal Growth Centre  
Anna University  
Chennai 25  
Email: [kalkura@gmail.com](mailto:kalkura@gmail.com)

Dr. S. Moorthy Babu  
Director & Professor  
Crystal Growth Centre  
Anna University  
Chennai 25  
Email: [babusm@gmail.com](mailto:babusm@gmail.com)

Dr. D. Rajakumari  
Principal  
Bharathiyar Arts and Science College  
Deviakurichi, Attur, Salem

## Declaration

I hereby declare that all the particulars stated above are true to the best of my knowledge and belief.

Place: Chennai

Yours Truly  
(S. Amudha)