Faculty Profile

Dr. S. Sudarsan, M.Sc., M.Phil., Ph.D.,
Associate Professor, Department of Chemistry

HIGHLIGHTS:

- Number of Journal Publications:**44**
- H-Index:**16**
- Patents Published: **Nil**
- Project Funding Received: **Nil**

PROFESSIONAL LINKS:

- Scopus ID: **57189002113**
- Scopus Link: **https://www.scopus.com/authid/detail.uri?authorId=57189002113**
- Google Scholar ID: **https://scholar.google.co.in/citations?user=iMxekCQAAAAJ&hl=en**
- AICTE Faculty ID: **1-9323090860**
- LinkedIn**: https://www.linkedin.com/feed/**

PROFESSIONAL BACKGROUND:

- Teaching Experience till date: **14 years**
- Industrial Experience: **Nil**

INTERNATIONAL EXPOSURE:

- Senior Researcher (Post-Doctoral Fellow) South Ural State University, Russia : **2. 4 years**

AREA OF SPECIALIZATION:

- Hydrogels
- Polymeric nanocomposites
- Biodegradable polymers
- High entropy oxides
- Recycling of metals

Ph.D GUIDINGs: Nil

SELECTED PUBLICATIONS

- Anandkumar, M., Kesavan, K. P**., Sudarsan, S**., Zhivulin, D. E., Shaburova, N. A., Ostovari Moghaddam, A., & Trofimov, E. A. (2025). Phase Evolution of High-Entropy Stannate Pyrochlore Oxide Synthesized via Glycine-Assisted Sol–Gel Synthesis as a Thermal Barrier Coating Material. *Nanomaterials*, *15*(12), 939. (**Scopus & SCIE indexed I.F. 4.4-Q1**).
- **Sudarsan, S.,** Venthan, S. M., Kumar, P. S., Andrews, B., Shebaz Ahmed, J. P., Trofimov, E. A., & Rangasamy, G. (2025). Synthesis of Maleic Acid/Polyethylene Glycol (MA/PEG) Nano-Silver Composite Hydrogel Adsorbent for Removal of Chromium (VI) Ions from Wastewater. *Journal of Polymers and the Environment*, 1-14. (**Scopus & SCIE indexed I.F. 4.7-Q1**).
- **Sudarsan, S.,** Anandkumar, M., Samodurova, M., Lezhnev, S., & Panin, E. (2025). Synthesis of CoFeCrMnNi/TiC-high entropy alloy composite coatings by electrodeposition technique. *Journal of Chemical Technology and Metallurgy*, 60 (3), 419-426. (**Scopus indexed I.F. 0.19**).
- **Sudarsan**, **S** Venthan,S.M, Senthilkumar, P, Anandkumar,M, D. A. Uchaev, E. A. Trofimov, Gayathri, R (2024). Investigation on the surface and photocatalytic behaviour of copper-iron-molybdate Cu7.26Fe7.26Mo12O48 nanocomposites prepared from discarded printed circuit boards, *New Journal of Chemistry*. (**Scopus & SCIE indexed I.F. 2.7-Q2**).
- Anandkumar, M., Kesavan, K. P., **Sudarsan, S.,** Zaitseva, O. V., Ostovari Moghaddam, A., Iarushina, D. V., & Trofimov, E. A. (2025). Band-Gap Engineering of High-Entropy Fluorite Metal Oxide Nanoparticles Facilitated by Pr^{3+} Incorporation by Gel Combustion Synthesis. *Gels*, 11(2), 117. (**Scopus & SCIE indexed I.F. 5.0-Q1).**
- Anandkumar, M., Kannan, P. K., Morozov, R. S., Zaitseva, O. V., **Sudarsan, S.,** & Trofimov, E. A. (2024). Electrochemical detection of p-nitrophenol using glassy carbon electrode modified using high-entropy oxide nanoparticles. *Ceramics International*. (**Scopus & SCIE indexed I.F. 5.1-Q1**).
- Parthiban, E., **Sudarsan, S.**, Charles, A., Mohan, S., Kumar, A., & Kistan, A. (2024). Synthesis and characterization of thermal properties of poly (p-cumylphenyl methacrylate-co-methoxyethyl methacrylate) copolymers. *Journal of Molecular Structure*, 140890. (**Scopus & SCIE indexed I.F. 4.0-Q2**).
- **Sudarsan, S**., Anandkumar, M., & Trofimov, E. A. (2024). Survey of diverse hydrometallurgy techniques for recovering and extracting valuable metals from PCB waste: an overview. *International Journal of Environmental Science and Technology*, 1-20. (**Scopus & SCIE indexed I.F. 2.86-Q1**).
- Anandkumar, M., Kannan, P. K., **Sudarsan, S**., & Trofimov, E. A. (2024). High-entropy oxide (CeGdHfPrZr) O2 nanoparticles as reusable photocatalyst for wastewater remediation. *Surfaces and Interfaces*, 104815. (**Scopus & SCIE indexed I.F. 5.7-Q1**).
- Chandrasekaran, N., Madheswari, D., & **Sudarsan, S**. (2024). Synthesis of copolymer of aniline-o-phenylenediamine using non-ionic surfactant Triton X-100: analysis of electrical conductivities and supercapacitor properties. *Ionics*, 1-11. (**Scopus & SCIE indexed I.F. 2.4-Q2**).
- **S. Sudarsan**, M. Anandkumar, E.A. Trofimov, Synthesis and characterization of copper ferrite nanocomposite from discarded printed circuit boards as an effective photocatalyst for Congo red dye degradation, *Journal of Industrial and Engineering Chemistry*, (Elsevier), 2023, (**Scopus & SCIE indexed I.F. 6.2-Q1**).
- **S. Sudarsan**, E.A.Trofimov, D.S.Franklin, S. Mullai Venthan, S. Guhanathan, S. M. Rangappa, S. Siengchin, Thermal, morphology and bacterial analysis of pH-responsive sodium carboxyl methylcellulose/fumaric acid/acrylamide nanocomposite hydrogels: Synthesis and characterization, *Heliyon*, 9,(11),e20939,2023 (Elsevier) (**Scopus & SCIE indexed I.F. 3.4-Q1**).
- E. Parthiban, N. Kalaivasan, **S. Sudarsan,** Facile fabrication of magnetic nanocomposite based on the itaconic acid-polyaniline functional modification, *Journal Of Cluster Science* (Elsevier), 2022**,** (**Scopus & SCIE indexed I.F. 2.7-Q2).**

- E. Parthiban, **S. Sudarsan**, Performance of copper oxide nanoparticles treated Polyaniline-itaconic acid based magnetic sensitive polymeric nanocomposites for the removal of chromium ion from industrial wastewater. *Polymeric Plastic Technology and Materials* (Taylor & Francis), 60, 18, 2021**, (Scopus & SCIE indexed I.F. 2.7-Q2**).
- E. Parthiban, N. Kalaivasan, **S. Sudarsan** Dual Responsive (pH and Magnetic) Nanocomposites Based on Fe_3O_4@ Polyaniline/Itaconic Acid: Synthesis, Characterization and Removal of Toxic Hexavalent Chromium from Tannery Wastewater. *Journal of Inorganic and Organometallic Polymers and Materials* (Springer), 2020, (**Scopus & SCIE indexed I.F. 3.9-Q2**).
- M. S. Selvi, G. Chitra, **S. Sudarsan**, D.S. Franklin, S. Guhanathan, Novel pH– tunable non – toxic hydrogels of Pyrrole-2-carboxylic acid and ethylenediamine derivatives: Synthesis and Characterization, *Polymeric Plastic Technology and Materials* (Taylor & Francis), 2020, (**Scopus & SCIE indexed I.F. 2.7-Q2**).
- E. Parthiban, **S. Sudarsan,** Functional modification of thermal behaviour of p-Cumylphenyl methacrylate-co-ethyl methacrylate Co-polymers: Synthesis and Characterization. *Journal of Inorganic and Organometallic Polymers and Materials* (Springer), 2020, (**Scopus & SCIE indexed I.F. 3.9-Q2**).
- **S. Sudarsan**, M. S. Selvi, G. Chitra, M. Sakthivel, D.S. Franklin, S. Guhanathan, Non-toxic pH-sensitive silver nanocomposite hydrogels for potential wound healing applications, *Polymeric Plastic Technology and Materials* (Taylor & Francis),2020, (1),60,84-104. (**Scopus & SCIE indexed I.F. 2.7-Q2**).
- E. Parthiban, N. Kalaivasan, **S. Sudarsan** A study of magnetic, antibacterial and antifungal behaviour of a novel gold anchor of polyaniline/itaconic acid/Fe_3O_4 hybrid nanocomposite: synthesis and characterization. *Arabian Journal of Chemistry* (Elsevier), 2019, (**Scopus & SCIE indexed I.F. 6.21-Q2**).
- G. Chitra, M. Sakthivel, D.S. Franklin, **S. Sudarsan**, M. S. Selvi, S. Guhanathan, Biomaterials mimicking indole-3-acetic acid-based gold nanocomposite hydrogels, *International Journal of Polymeric Materials and Polymeric Biomaterials* **(Taylor & Francis)**, **2019**, 74 (8), 3379-3398. (**Scopus & SCIE indexed I.F. 3.2-Q2**).
- G. Chitra, D.S. Franklin, **S. Sudarsan**, M. Sakthivel, S. Guhanathan, Non-cytotoxic silver and gold nanocomposite hydrogels with enhanced antibacterial and wound healing applications, *Polymer Engineering & Science* (Wiley), 2018, 58 (12), 2133-2142. (**Scopus & SCIE indexed I.F. 3.2-Q2).**
- M. Sakthivel, D.S. Franklin, **S. Sudarsan**, G. Chitra, T.B. Sridharan, Guhanathan, (**2018**), Investigation on pH/salt-responsive multifunctional itaconic acid based polymeric biocompatible, antimicrobial and biodegradable hydrogels, *Reactive and Functional Polymers* (Elsevier), 2018, 122, 9-21. (**Scopus & SCIE indexed I.F. 4.5-Q1**).
- **S. Sudarsan,** D. S. Franklin, M. Sakthivel, G. Chitra, T. B. Sridharan and S. Guhanathan, Ecofriendly pH-tunable hydrogels for removal of perilious thiazine dye. *Journal of Polymers and the environment* (Springer), 2018**,** 26 (9), 3773-3784. (**Scopus & SCIE indexed I.F. 4.7-Q1**).
- G. Chitra, D.S. Franklin, **S. Sudarsan**, M. Sakthivel, S. Guhanathan, Preparation, antimicrobial and antioxidant evaluation of indole-3-acetic acid-based pH-responsive bio-nanocomposites, *Polymer Bulletin* (Springer), 2017, 74 (8), 3379-3398. (**Scopus & SCIE indexed I.F. 3.1-Q2**).
- M. Sakthivel, D.S. Franklin, **S. Sudarsan,** G. Chitra, S. Guhanathan, Investigation on Au-nano incorporated pH-sensitive (itaconic acid/acrylic acid/triethylene glycol) based polymeric biocompatible hydrogels, *Materials Science and Engineering: C* (Elsevier), 2017, 75, 517-523. (**Scopus & SCIE indexed I.F. 6.1-Q1**)
- G. Chitra, D.S. Franklin, **S. Sudarsan**, M. Sakthivel, S. Guhanathan, Indole-3-acetic acid/diol- based pH-sensitive biological macromolecule for antibacterial, antifungal and antioxidant applications**,** 2017, *International journal of biological macromolecules* (Elsevier), 95, 363-375. (**Scopus & SCIE indexed I.F. 7.7-Q1)**.
- **S. Sudarsan**, D.S. Franklin M. Sakthivel and S. Guhanathan, Non-toxic, antibacterial, biodegradable hydrogels with pH-stimuli sensitivity: Investigation of swelling parameters, *Carbohydrate Polymers* (Elsevier), 2016, 148 (5), 206-215. (**Scopus & SCIE indexed I.F. 10.7-Q1).**
- M. Sakthivel, D.S. Franklin, **S. Sudarsan**, G. Chitra, S. Guhanathan, Investigation on pH-switchable (itaconic acid/ethylene glycol/acrylic acid) based polymeric biocompatible hydrogel, *RSC Advances*, 2016, 6 (108), 106821-106831. (**Scopus & SCIE indexed I.F. 4.0-Q1**)

- T. Akitsu , B. Miroslaw, **S. Sudarsan**, Photofunctions in Hybrid Systems of Schiff Base Metal Complexes and Metal or Semiconductor (Nano)Materials, *International Journal of Molecular Sciences*, 2022, 2;23(17):10005. (**Scopus & SCIE indexed I.F. 6.2-Q1**)

PATENTS PUBLISHED/GRANTED: Nil

COURSES CERTIFIED: Nil

ACHIEVEMENTS AND AWARDS:

- **2017-**(**Won Best Oral Presentation Award**) PG & Research Department of Physics & Chemistry, Govt. Arts College, Thiruvannamalai, India, during 25th and 26th July, 2017.
- **2019-**(**Won Best Oral Presentation Award**) PG & Research Department of Chemistry, DKM College, Vellore, Tamil Nadu. India.

BOOK CHAPTERS PUBLISHED: Nil

BOOKS PUBLISHED: Nil

SPECIAL SESSIONS DELIVERED:

- **2025**- "AI-Guided Optimization of pH-responsive Hydrogels Swelling Behaviour for Biomedical Applications" *Five days International Conference on Exploring AI-Driven Multidisciplinary Research* **(ICEAMR-2025)** being organized by Department of Chemistry, Christ The King Engineering College, Coimbatore district, Tamil Nadu, during 24th and 28h March. (Online)
- **2024**- "Photocatalyst from e-waste" one day International Webinar being organized by Department of Physics, Thiruvalluvar University, Vellore district, Tamil Nadu, during 11th January. (Online)
- **2021**-"Environmental remediation of toxic metal ions from waste water Using pH- sensitive hydrogels" *A Two day International Symposium on Environmental and Chemical Engineering* **(ISECE-2021)** being organized by Department of Chemistry, Curtin University, Malaysia during 25th and 26th November-2021.(Online)
- **2021**- "Smart Hydrogels as Multifunctional Biomimetic System" *A Two day International Conference on Polymer Science and Technology* **(ICPST-2021)** being organized by Department of Chemistry, Sri Vidya Mandir Arts and Science College, Uthangarai, Krishnagiri district, Tamil Nadu, during 09th and 10th March. (Online)

PROFESSIONAL MEMBERSHIPS: Nil

EDITORIAL BOARD MEMBER: Nil

REVIEWER IN REPUTED JOURNALS

- **Elsevier:** Bioactive materials, Hydrometallurgy, Results in Chemistry, Heliyon, Nano-Structures & Nano-Objects, International Journal of Biological Macromolecules.
- **Springer:** Applied Nanoscience, Polymer Bulletin, Environmental Science and Pollution Research.
- **Taylor& Francis:** Polymer-Plastics Technology and Materials
- **Wiley:** Journal of Applied Polymer Science (Wiley)
- **Bentham Science Pub:** Current Organic Synthesis
- **Others:** Polymer (Korea), Green Nanotechnology, MDPI Expert Reviewer,
- Academic Exchange Information Centre (AEIC)

PAPERS PRESENTED

- **2013**- Second National Conference on Application of Analytical Tools in Chemical and Biological Sciences, 4th and 5th October -2013 held at Department of Chemistry, D.K.M College Vellore, and Tamil Nadu. (**Oral presentation**).
- **2014**- "Synthesis, characterization and dye removal studies on pH-sensitive sodium alginate based biopolymeric hydrogels: A solventless green approach" in the International Conference on Green Technology for environmental pollution Prevention and Control (ICGTEPC-2014) held on 27th and 29th September - 2014 at Department of Chemistry, NIT, Tiruchirappalli, Tamil Nadu. (**Oral presentation**).
- **2014**- "Imbibed Salts and pH – responsive behaviours of sodium alginate based eco- friendly biopolymeric hydrogels-A solventless approach" in the National Conference on Recent Advances in Chemistry and Environment (RACE-2014), held on 21-11-2014 conducted by Department of Chemistry, SRM University, Vadapalani campus, Chennai, Tamil Nadu. (**Oral presentation)**.
- **2014**- "Smart biopolymeric hydrogels" in UGC Sponsored National Seminar on New Opportunities and Challenges in chemical Research (NOCCR-2014), 29th and 30th December -2014 held at Department of Chemistry, A.V.V.M Sri Pushpam College, Poondi, Thanjavur. Tamil Nadu. (**Oral presentation**).
- **2014**- "Studies On pH- Sensitive Sodium Alginate Based Biopolymeric Hydrogels: A Solventless Green Approach" UGC- National Conference on Recent Research Trends in Chemistry (RRTC-2014), held On 25th &26th Sep-2014 Conducted By Department Of Chemistry, C. Abdul Hakeem College, Melvisharam, Vellore, Tamil Nadu. (**Oral presentation).**
- **2015**- "Investigation on swelling parameters of smart biopolymeric hydrogels" International Conference on Nanomaterials for Frontier Applications (ICNFA-2015), 2-4th, December-2015, held at Coimbatore Institute of Technology (CIT), Coimbatore, Tamil Nadu. & Bergen University College, Norway. (**Oral presentation**).
- **2015**- "Influence of ethylene oxide units on pH and salt responsibility of sodium alginate biopolymeric hydrogels-By Greener approach" in the National Conference on Frontiers in Chemistry and Environment (NCFCE-2015), held on 27th - 28th March - 2015 at Department of Chemistry, C. Abdul Hakeem College of Engineering and Technology, Melvisharam, Vellore, Tamil Nadu. (**Oral presentation**).
- **2015**- "Green Synthesis of Sodium alginate based smart biopolymeric pH- sensitive hydrogels-A Green approach" in the DST-SERB & BRNS sponsored National Conference on Emerging Trends in Chemistry and Materials (ETCM-2015), 9th and 10th April -2015 held at Department of Chemistry, Thiruvalluvar University, Serkkadu, Vellore. Tamil Nadu. (**Oral presentation).**
- **2016**- "Spectral and Morphological Investigation on Biodegradable Sodium Alginate Hydrogels: A Comparison" 9th National Level Science Symposium. February 14, 2016, Organized by Christ College, Rajkot & Sponsored by GUJCOST, Gandhi nagar, Gujarat. (**Oral presentation).**
- **2016**- "Biodegradable and biocompatible pH sensitive hydrogels for environmental applications" in the International Conference on Recent Advances in Technology, Engineering and Science (ICRATES-2016), held on 27th - 28th July - 2016 at Department of Chemistry, C. Abdul Hakeem College of Engineering and Technology, Melvisharam, Vellore, Tamil Nadu. (**Oral presentation**).
- **2016**- "Studies on biodegradation of sodium alginate-based hydrogels" National level seminar on Recent Trends in Chemical Sciences, 5th February 2016 held at Muthurangam Govt. Arts College, Vellore (RTCS-2016). (**Oral presentation**).
- **2016**- "Multifarious sodium alginate biodegradable pH-sensitive hydrogels accelerate wound healing process" National Seminar on "Advanced Polymers - A gateway to research & industries" (APGRI-2016), being organized by the Department of Chemistry, Meenakshi College for Women on 22nd-23rd September, 2016. Chennai, Tamil Nadu. (**Oral presentation**).
- **2017**- "Biodegradable pH responsive hydrogels for wound healing applications" National Seminar on "Advanced Polymers – National Conference on recent Advancements in Materials Sciences-(NCRAMS-

2017), being organized by PG & Research Department of Physics & Chemistry Govt. Arts College, Thiruvannamalai, Tamil Nadu, during 25th- 26th July, 2017 (**Oral presentation**).

- **2018**- "Fabrication, characterization and antibacterial activity of silver biocomposite polyol hydrogels via greener approach" IV- National Conference on Emerging Trends in Chemical and Biological Sciences (ETCBS-2018) – 5th January- 2018 held at DKM College, Vellore, and Tamil Nadu. (**Oral presentation**).
- **2018**- "Silver Nanocomposite Hydrogels-Greener Approach Using Mint Leaf Extract" International Conference on Advancement and Challenges in Chemical Sciences (ICACCS-2018) being organized by PG & Research Department of Chemistry, Pachaiyappa,s College, Chennai. Tamil Nadu, during 02nd and 03rd February 2018. (**Oral presentation**).
- **2019**- "Effect of Chain Length of Diols on The Swelling Character Of Sodium Alginate Based Biopolymeric Hydrogels-A Comparitive Study" IV- National Conference on Emerging Trends in Chemical and Biological Sciences (ETCBS-2019) – 5th January- 2019- ETCBS-2019), held at DKM College, Vellore, Tamil Nadu (**Oral presentation**).
- **2019**- "Chitin and it is applications" 4th National Seminar on Recent Trends in Smart Materials (NSSM-2019) 29th March 2019, held at Kings College of Engineering, Thanjavur, and Tamil Nadu. (**Oral presentation**).
- **2020**- "The Characteristics of Smart Polymers As pH-Responsive Hydrogels: Synthesis and Applications" International Conference on "New dimensions of materials chemistry" (ICNDMC-2020) being organized by PG & Research Department of Chemistry, Islamiah College, Vaniyambadi. Tamil Nadu, during 05th January 2020. (**Oral presentation**).
- **2021**- "Fabrication of polysaccharide and diol based biodegradable nanocomposite hydrogels for wound healing applications via greener approach" National Conference on Changing Trends in Polymer Science and Technology (CTPST-2021) being organized by Department of Chemistry, NIT, Calicut, Kerala, during 20th-21st January 2021. (**Oral presentation**).

WORKSHOPS:

- One day Workshop on instrumental methods of analysis Conducted by VITCA-2006, VIT University, Vellore on 7th January 2006. (**Participated**).
- Two days National Workshop on Advanced Characterization Techniques (ACT-2015) organized by the Department of Chemistry, Periyar University, Salem during 29th and 30th January 2015. (**Participated**).
- Two–week ISTE Workshop on Environmental Studies Conducted by IIT Bombay under the National Mission on Education Through ICT (MHRD, Govt. Of India) held on 2nd -12th June-2015 conducted by TPGIT, Vellore, and Tamilnadu. (**Participated**).
- Two days National Workshop on "Spectral, Electrochemical and Analytical Techniques" (SEAT-2018) organized by the Department of Chemistry, Periyar University, Salem during 8th and 9th February 2018. (**Participated**).
- Online Workshop on Universal Human Values on the theme of "Inculcating Universal Human Values in Technical Education" during 2-6 November, 2020 as organized by All India Council for Technical Education (AICTE). (**Participated**).

NATIONAL SEMINARS / SYMPOSIUM

- S. Sudarsan, presented a paper "Chitin and it is applications" UGC sponsored National Level Seminar on New Trends in Nanochemistry 25th -26th August 2006, held at Sacred Heart College, Tirupattur, Vellore, Tamil Nadu. (**Oral presentation**).

- S. Sudarsan, participated in the UGC sponsored State Level Seminar on "The New Vistas in Spectroscopic Techniques" 20th -21st August 2005, held at Islamiah College, Vaniyambadi, Vellore, and Tamil Nadu. (**Participated**).

- S. Sudarsan, participated in the UGC sponsored State Level "Seminar on Advanced Materials" (SAM-2005) 14th-15th September 2005, held at Islamiah College, Vaniyambadi, Vellore, and Tamil Nadu. (**Participated**).

- S. Sudarsan, participated in National Symposium on Chemistry for Engineers (NSCE-2016) 9th April 2016, held at Department of Chemistry, SAS, VIT University, Vellore, Tamil Nadu. (**Participated**).

FACULTY DEVELOPMENT PROGRAMME'S

- Faculty Development Programme on "Better Engineering Skills through Better Chemistry Protocols" Organized by NIT, Calicut, Kerala (MHRD, Govt. Of India) during 09th-13th June- 2014. (**Participated**).

- Faculty Development Programme on "Building Online Feedback Application Using Google Apps" Organized by Department of Computer Science & Engg, C. Abdul Hakeem College of Engineering and Technology, Melvisharam, Vellore- 632 509, Tamil Nadu on 31.01.2018. (**Participated**).

- Faculty Development Programme on "Active Learning" Organized by Department of Computer Science & Engg, C. Abdul Hakeem College of Engineering and Technology, Melvisharam, Vellore- 632 509, Tamil Nadu on 21.04.2018. (Participated).

- Two Days Faculty Development Programme on "Essential of Optical and SEM analysis" by Department of Instrumentation & Humanities, MIT Campus, Anna University, Chennai Tamil Nadu on 31.01. 2020 and 01.02.2020. (**Participated**).