CURRICULUM VITAE

Dr. P. Sathiyanathan, M.Sc., Ph. D (Chemistry)
Post-Doctoral Research Fellow
Soft Mechatronics and Intelligent Materials Lab
Mechanical Engineering Research Institute
Korea Advanced Institute of Science and Technology (KAIST)
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Date of Birth: 03/05/1987, 35 Years
Nationality: Indian; Status: Married

Academic Experience

- **Assistant Professor in Chemistry**, Department of Science & Humanities, Adhi College of Engineering and Technology, Kancheepuram, **INDIA** from July 2018 to Feb 2019 **(08 months).**
- **Assistant Professor in Chemistry**, Department of Science & Humanities, Agni College of Technology, Chennai, **INDIA** from January 2017 to April 2018 **(16 months).**
- **Assistant Professor in Chemistry**, Department of Science & Humanities, Karpagam College of Engineering, Coimbatore, **INDIA** from November 2015 to December 2016 **(13 months).**

Research Experience

- **Postdoctoral Research Fellow**, Soft Mechatronics and Intelligent Materials Lab, Mechanical Engineering Research Institute, ***Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea*** from June 2022 to till date **(10 months)**.
- **Visiting Postdoctoral Research Fellow**, ***Institute Jean Lamour, University of Lorraine, Campus ARTEM, Nancy Cedex, France*** from February 2022 to March 2022 **(02 months)**.
- **Postdoctoral Research Fellow**, Indo-French Centre for the Promotion of Advanced Research **(IFCPAR/CEFIPRA project)**, ***International and Inter University Centre for Nanoscience and Nanotechnology (IIUCNN), Mahatma Gandhi University, Kerala*** from May 2021 to May 2022 **(12 months).**
- **Postdoctoral Research Fellow**, CAS Key Laboratory of Design and Assembly of Functional Nanostructures and Fujian Key Laboratory of Nanomaterials, ***Fujian Institute of Research on the Structure of Matter, Haixi Institutes, Chinese Academy of Sciences, P. R. CHINA*** from May 2019 to May 2021 **(24 months).**
- **Invited Professor**, University-Industry Cooperation (Industrial Strategic Technology Development Program), Department of Advanced Materials for Information and Technology, College of Engineering, ***Kyung Hee University – Global Campus***, **SOUTH KOREA**, from April 2014 to March 2015 **(12 months)**.
- **Research Intern**, Department of Advanced Materials for Information and Technology, ***Kyung Hee University***, **SOUTH KOREA**, from March 2013 **(01 Month)**.

Awards and Fellowships Received

- **Research Assistant (RA)**, Vellore Institute of Technology (VIT), INDIA from September 2013 to March 2014 **(7 Months)** and July 2010 to June 2011 **(1 Year).**
- **Junior Research Fellow (JRF)**, Dept. of Science and Technology (DST), Govt. of INDIA from July 2011 to June 2013 **(2 Years).**
- **International Travel Grant (25,000 INR)** from Council for Scientific and Industrial Research (CSIR), Govt. of INDIA for attending an International Conference (POLYCHAR 21) held at Gwangju, **SOUTH KOREA** in the year 2013.

Educational Credentials

- **Doctor of Philosophy (Ph. D)** in Materials Science at **Vellore Institute of Technology (VIT)**, Vellore, INDIA during July, 2010 to July 2016 (6 years).
  Ph. D Supervisor:
  Dr. A. Anand Prabu, Associate Professor in Chemistry, Vellore Institute of Technology (VIT), INDIA.
  Thesis Title: **PVDF based Electrospun nanoweb sensors for Electronic Applications**.
- **Master of Science (M. Sc)** in Chemistry, Presidency College, Chennai, INDIA with 1st class (68.88 %) during 2007 to 2009.
- **Bachelor of Science (B. Sc)** in Chemistry, Govt. Arts College, Chennai, INDIA with Distinction (81.23 %) during 2004 to 2007.

Subjects handled:

#	Name of the subject	Program	Course affiliated and approved by
1	Environmental Science	B.E/B.Tech	Anna University
2	Engineering Chemistry-I	B.E/B.Tech	Anna University
3	Engineering Chemistry-II	B.E/B.Tech	Anna University
4	Chemistry for Technologists	B.Tech	Anna University
5	Polymer Nanocomposites	M.Tech	Mahatma Gandhi University

Positions held in Academics:

(1) Program Coordinator	M.Tech, Nanoscience and Nanotechnology (2021-2022), Mahatma Gandhi University, Kerala, INDIA
(2) Course Coordinator	(a) Polymer Nanocomposites (2021-2022)
	(b) Engineering Chemistry-I (2017-18)
	(c) Chemistry for Technologists (2017-18)
	(d) Environmental science for engineers (2016-17)
(3) Accreditation In-Charge (Result Analysis)	ISO, NBA, NAAC – Criteria (IV)
(4) Lab In-charge	(a) Research Lab - Synthesis (2021) (b) Chemical Engineering Lab (2017-18) (c) Engineering Chemistry Lab (2015-2016)
(5) Sports Coordinator	Karpagam College of Engineering (2015-2016)

(6) Club Coordinator (Music & Dance)	Karpagam College of Engineering (2015-2016)

Patents

1 Kap Jin Kim, Sol Jee Lee, A. Anand Prabu, **Sathiyanathan Ponnan** *"Nanofiber web piezoelectric material obtained by electrospinning polylactic acid, method of producing same, piezoelectric sensor comprising same, and method of manufacturing the piezoelectric sensor".* **Patent number: US20180240959A1,** Type: **Application,** Published on **2018/8/23.**

Publications

1 Lakshmipriya Ravindran, Sreekala M.S, S. Anilkumar, **Sathiyanathan Ponnan**, Nandakumar Kalarikkal, Sabu Thomas, *Mechanical, morphological behaviour and electrical conductivity of phenol formaldehyde-flax fabric (PF-F) hybrid composites reinforced with rice husk derived nano-silica.* Silicon, 2022.

2 Harini Bhuvaneswari G, **Sathiyanathan Ponnan,** Yan Ling Zheng, Abdelatif Laroui, Haopeng Wang, Lixin Wu*, Jianlei Wang*, *Facile Fabrication of Highly Sensitive Thermoplastic Polyurethane Sensor with Surface Impregnated 3D conductive network.* ACS-Applied Materials and Interfaces, (14) 19, 22615-22625, 2022.

3 Harini Bhuvaneswari G, **Ponnan Sathiyanathan,** Naveen Thirunavukkarasu, Abdelatif Laroui, Lixin Wu*, Jianlei Wang*, *Rapid carbon dioxide foaming of 3D printed thermoplastic polyurethane elastomers.* ACS-Applied Polymer Materials, (4) 2, 1497-1511, 2022.

4 Shamim-Ara Pervin, **Ponnan Sathiyanathan,** Arun Anand Prabu, and Kap Jin Kim* *Piezoelectric Sensor Based on Electrospun Poly(Vinylidene Fluoride)/Sulfonated Poly(1,4-Phenylene Sulfide) Blend Nanoweb,* Journal of Applied Polymer Science, (19) 139, e52112, 2022.

5 Gunasekhar R, Indumathy B, Manjula Dhevi Dhevagoti, **Sathiyanathan P**, Anand Prabu Arun, *Synthesis of Aromatic Hyperbranched Polymer based on Diphenolic Acid and Pentaerythritol:Reaction Kinetics using FTIR technique*. ECS Transaction, 107, (1) 11137, 2022.

6 Indumathy B, Gunasekhar R, **Sathiyanathan P**, Anand Prabu Arun, *Chemistry and Applications of Organosilanes – An Overview*, ECS Transaction, 107, (1) 14539, 2022.

7 Manjula Dhevi Dhevagoti, **Sathiyanathan Ponnan**, Anand Prabu Arun, Hongdoo Kim, *Phase Transition in PVDF-TrFE/Hyperbranched Polyester (90/10) Blend Thin Film during Heating-Cooling Cycle using FTIR Spectroscopy*, ECS Transaction, 107, (1) 9445, 2022.

8 Gunasekhar R, Indumathy B, **Sathiyanathan P**, Anand Prabu Arun, *A Mini-Review on the Synthesis, Characterization and Applications of End-capped Hyperbranched Polymers,* ECS Transaction, 107, (1) 11351, 2022.

9 Harini Bhuvaneswari G, **Sathiyanathan Ponnan**, Naveen Thirunavukkarasu, Kechen Wu, Lixin Wu* and and Jianlei Wang* *Investigation of in-situ chemical cross-linking during fused filament fabrication process on parts shrinkage reduction and interlayer adhesion,* Journal of Materials Research and Technology, 15, 2026-2035, 2021

10 **Ponnan Sathiyanathan**, Thomas Walter Schmidt, Tianyuan Li, Gunasekaran Harini Bhuvaneswari, Xixian Ke, Yajing Huang, Suhail Mubarak, A. Anand Prabu, Zixiang Weng, * and Lixin Wu* *Electrospun Poly(vinylidene fluoride)- Magnesiochromite Nanofiber based Piezoelectric Nanogenerator for Energy Harvesting Applications,* ACS-Applied Polymer Materials, 3 (10), 4879-4888, 2021.

11 **Ponnan Sathiyanathan**, Lixin Wu, Thomas Walter Schmidt, Gunasekaran Harini

Bhuvaneswari, Tianyuan Li, Hongdoo Kim, Arun Anand Prabu* and Kap Jin Kim* *Piezoelectric-piezocapacitive hybrid sensor based on electrospun Poly(vinylidene fluoride)-Poly(octafluoropentyl acrylate)-sulphonated Poly(phenylene ulphide) blend nanofiber*. Sensors and Actuators A: Physical, 331, (2021) 112993.

12 P. Lakshmi Praba, D. Manjula Dhevi, R. Gunasekhar, **P. Sathiyanathan**, M.S. Reza, Hongdoo Kim*, A. Anand Prabu* *Development of Energy Harvesting Piezoelectric Sensors based on Electrospun Polyvinylidene Fluoride/Aliphatic Hyperbranched Polyester (Gen-1) (80/20) Blend*. Materials Today: Proceedings, 47 (4), 914-920, 2021.

13 R. Gunasekhar, **P. Sathiyanathan**, D. Manjula Dhevi, M. Shamim Reza, A. Anand Prabu*, Hongdoo Kim* *Studies on Electrospun Polyvinylidene Fluoride/Aromatic Hyperbranched Polyester (Gen-1) Blend Nanoweb for Energy Harvesting Applications*. Materials Today: Proceedings, 47 (4), 885-888, 2021.

14 Suhail Mubarak, Duraisami Dhamodharan, Manoj B. Kale, Nidhin Divakaran, T. Senthil, **Sathiyanathan P**, Lixin Wu* and Jianlei Wang*, *A Novel Approach to Enhance Mechanical and Thermal Properties of SLA 3D Printed Structure by Incorporation of Metal–Metal Oxide Nanoparticles.* Nanomaterials, 10 (2), 217, 2020.

15 **Ponnan Sathiyanathan**, D. Manjula Dhevi, Arun Anand Prabu*, Kap Jin Kim* *Electrospun Polyvinylidene fluoride-Polyoctafluoropentyl Acrylate-Hydroxyapatite Blend based Piezoelectric Pressure Sensors.* Macromolecular Research, 27 (8), 743-749, 2019.

16 Prasad Gajula, **Sathiyanathan. P**, Anand Prabu. A*, Kap Jin Kim* *Piezoelectric characteristics of electrospun PVDF as a function of phase separation temperature and metal salt content*. Macromolecular Research, 25 (10), 981-988, 2017.

17 **Ponnan Sathiyanathan**, A. Anand Prabu*, Kap Jin Kim* *Electrospun polyvinylidene fluoride-Polyoctafluoropentyl acrylate based piezocapacitive pressure sensors*. Macromolecular Research, 24 (8), 670-674, 2016.

18 **Ponnan Sathiyanathan***, A. Anand Prabu *Studies on ferroelectric crystalline phase changes in poly (octafluoropentyl acrylate) as a function of varying thermal treatment conditions.* Research Journal of Pharmaceutical, Biological and Chemical Sciences, Vol.6 (6), 721-725, 2015.

19 A. Sivaraman, **P. Sathiyanathan**, D. Manjula Dhevi, A. Anand Prabu*, Heecheul Kim *Functionalized Fe_3O_4 nanoparticles for the removal and remediation of Cr VI metal ions from synthetic solutions*. Journal of Indian Chemical Society, 92, 671-674, 2015.

20 **P. Sathiyanathan**, D. Manjula Dhevi, A. Anand Prabu*, Kap Jin Kim* *Effect of Thermal Cycling on the Ferroelectric Characteristics of Vinylidene Fluoride- Trifluoroethylene Copolymer Thin Films.* Advanced Materials Research, Vol. 584, 201-204, 2012.

List of Conferences presented

1 **P. Sathiyanathan,** D. Manjula Dhevi, A. Anand Prabu and Kap Jin Kim
Oral presentation, *"FT-IR Spectroscopy as an Effective Tool for Monitoring Crystalline Phase Changes in Ferroelectric Polymer based Sensors"*, pp. 117-119, Proc. Of 3rd International Conference on Sensors and Related Networks (SENNET-2012), Jan. 19-21, 2012, VIT University, Vellore, INDIA.

2 **P. Sathiyanathan,** D. Manjula Dhevi, A. Anand Prabu and Kap Jin Kim
Poster presentation, *"Effect of Thermal Cycling on the Ferroelectric Characteristics of Vinylidene Fluoride-Trifluoroethylene Copolymer Thin Films"*, Ferroelectric and Magnetic Materials, FMM-Pr-15, pp. 143, Proc. Of International Conference on Recent Trends in Advanced Materials (ICRAM-2012), 20-22 Feb, 2012, VIT University, Vellore, INDIA.

3 **P. Sathiyanathan,** D. Manjula Dhevi, Kap Jin Kim and A. Anand Prabu

Oral Presentation, *"PVDF Copolymer Nanoscale Films with Improved Surface Morphology for Data Storage Applications"* pp.71, Book of abstracts of POLYCHAR-21 "21st World Forum on Advanced Materials", March 11-15, 2013, Chosun University, Gwangju, SOUTH KOREA.

4 Dhruv Kamath, **P. Sathiyanathan,** D. Manjula Dhevi, Kap Jin Kim and A. Anand Prabu
Poster Presentation, *"Effect of Varying Heat Treatment Conditions on the Crystalline Phases in POFPA (Poly octafluoropentyl acrylate)"* pp.228, Book of abstracts of POLYCHAR-21 "21st World Forum on Advanced Materials", March 11-15, 2013, Chosun University, Gwangju, SOUTH KOREA.

5 **P. Sathiyanathan,** Dhruv Kamath and A. Anand Prabu
Poster Presentation, *"Synthesis of Poly (octafluoro pentyl acrylate) and the effect of varying heat treatments"* pp.85, "Recent Trends in Materials Chemistry", July 25-27, 2013, VIT University, Vellore, INDIA.

6 G. Prasad, **P. Sathiyanathan** and A. Anand Prabu
Poster Presentation, *"Studies on the wettability of PVDF-CNT Nanocomposite coatings"* pp.86, "Recent Trends in Materials Chemistry", July 25-27, 2013, VIT University, Vellore, INDIA.

7 P. Sivaraman, **P. Sathiyanathan** and A. Anand Prabu
Poster Presentation, *"Studies on Polymer-CNT beads as a heavy metal adsorbent from industrial effluents"* pp.87, "Recent Trends in Materials Chemistry", July 25-27, 2013, VIT University, Vellore, INDIA.

8 **P. Sathiyanathan,** D. Manjula Dhevi, A. Anand Prabu and Kap Jin Kim
Poster Presentation, *"Effect of film thickness on the crystalline phases in POFPA: A comparative study using FTIR-TS and GIRAS"* pp.129, "International Conference on Emerging Trends in Chemical Sciences", Dec 5-7, 2013, VIT University, Vellore, INDIA.

9 **P. Sathiyanathan,** A. Anand Prabu, Kap Jin Kim
Poster Presentation, *"Studies on Ferroelectric crystalline phase changes in POFPA as a function of varying thermal treatment conditions"* pp.130, "International Conference on Emerging Trends in Chemical Sciences", Dec 5-7, 2013, VIT University, Vellore, INDIA.

10 Yu Jin Ahn, Lu Jin, **P. Sathiyanathan,** A. Anand Prabu, Kap Jin Kim*
Poster presentation, *"Piezoelectricity of Electrospun PVDF Nanofiber Web and Respiration Monitoring Using it as a Vital Sensor"* 2PS-36, pp. 173, "Proc. Of the Korean Textile Conference 2014 Fall Meeting", 47(1), Sep' 25-26th, 2014, Busan, SOUTH KOREA.

11 Yu Jin Ahn, Jin Lu, **P. Sathiyanathan,** A. Anand Prabu, Kap Jin Kim*
Poster presentation, *"Crystallization behaviour of Poly(L-lactic Acid)- Poly(dimethylsiloxane) Copolymers"* 2PS-95, pp. 100, Proc. Of Polymer Society 2014 Fall Meeting, 39(2), Oct' 06 – 08th, 2014, ICC Jeju, SOUTH KOREA.

12 Yu Jin Ahn, Jin Lu, **P. Sathiyanathan,** A. Anand Prabu, Kap Jin Kim*
Poster presentation, *"Piezoelectric Characteristics of Electrospun Poly(vinylidene fluoride) Nanofiber Webs Coated with Silicone Rubber"* 2PS-96, pp. 100, Proc. Of Polymer Society, 2014 Fall Meeting, 39(2), Oct' 06 – 08th, 2014, ICC Jeju, SOUTH KOREA.

13 Lu Jin, Yu Jin Ahn, **P. Sathiyanathan,** A. Anand Prabu, Kap Jin Kim*
Poster presentation, "*Comparative Electrode Properties of Silver-coated PU and SBS Electrospun Nanoweb for Lung EIT Sensor"* 2PS-95, pp. 100, Proc. Of Polymer Society 2015, Spring Meeting, 40(1), Apr' 08 – 10th, 2015, Daejeon, SOUTH KOREA.

14 Lu Jin, **P. Sathiyanathan,** A. Anand Prabu, Kap Jin Kim*
Poster presentation, *"Effect of Post Cross-linking on the Soft Segments of Styrene block*

Copolymer based with Improved Capacitive Sensor Performance" 2PS-96, pp. 100, Proc. Of Polymer Society 2015 Spring Meeting, 40(1), Apr' 08 – 10th, 2015, Daejeon, SOUTH KOREA.

15 **Ponnan Sathiyanathan,** A. Anand Prabu, Kap Jin Kim*
Poster presentation, *"Effect of Sulphonated Polyphynylene Sulphide (sPPS) on Piezoelectric Properties of Electrospun Polyvinylidene fluoride/Polyoctafluoropentyl Acrylate Based Pressure Sensors"* International Conference on Advanced Polymers for Science and Technology. October 24-26th, 2016, VIT University, INDIA.

16 R. Gunasekhar, **P. Sathiyanathan,** D. Manjula Dhevi, M. Shamim Reza, A. Anand Prabu*, Hongdoo Kim**
Oral presentation, *"Studies on Electrospun Polyvinylidene Fluoride/Aromatic Hyperbranched Polyester (Gen-1) Blend Nanoweb for Energy Harvesting Applications"*, Proc. On International Conference on Advancements in Materials Science and Technology (iCAM-2020), 23-25, November 2020, Sathyabama Institute of Science and Technology, Chennai, INDIA.

17 P. Lakshmi Praba, D. Manjula Dhevi, R. Gunasekhar, **P. Sathiyanathan,** M.S. Reza, Hongdoo Kim**, A. Anand Prabu**
Oral presentation, "*Development of Energy Harvesting Piezoelectric Sensors based on Electrospun Polyvinylidene Fluoride/Aliphatic Hyperbranched Polyester (Gen-1) (80/20) Blend"*, International Conference on Advancements in Materials Science and Technology (iCAM-2020), 23-25, November 2020, Sathyabama Institute of Science and Technology, Chennai, INDIA.

18 Harini Bhuvaneswari Gunasekaran, Dhandapani Kuzhandaivel, Jose Varghese Rajendran, **Sathiyanathan Ponnan,** Lixin Wu*
Poster presentation, *"Extrusion-Based Additive Manufacturing of Polypropylene Polymer with No Shrinkage/Warpage Through Grafting with Olefin Elastomer"*, International Conference on Advanced Materials and Mechanical Characterization (ICAMMC), 02-04, December 2021, SRM Institute of Science and Technology (SRMIST), Chennai, INDIA.

19 **Ponnan Sathiyanathan**, M.T. Rahul, C.S. Chitra Lekha, Marc Poncot, Sabu Thomas, Isabelle Royaud, Didier Rouxel, Nandakumar Kalarikkal, Oral Presentation, "*Bio-filler Interfaced Polyvinylidene Fluoride/Nickel Ferrite Electrospun Composite as Sustainable Multifunctional Energy Harvester"*, International Symposium on Polymer Nanocomposites (ISPN 2022–), 28-30 September 2022, Lorient, FRANCE.

Invited talks and Special Lectures given:

1 **Short Invited Talk**, "*Electrospun nanofibers of PVDF incorporated with non-conventional filler materials for improved electroactive phase and its use in piezoelectric energy harvesting applications"*, International Online Conference on Energy Sciences (ICES 2021), 10-12, December 2021, Mahatma Gandhi University, INDIA.

2 **Invited Talk** on *"Polymer-Based Flexible Piezoelectric Sensors for Energy Harvesting and Physiological Signal Monitoring Applications"* at 3rd Franco-Indian Workshop on Nanocomposites Applications to energy harvesting and sensors, 13-14, December 2021, Institute Jean Lamour, University of Lorraine, Nancy, FRANCE.

3 **Special Lecture** on *"Polymer-Based Flexible Piezoelectric Sensors for Energy Harvesting and Physiological Signal Monitoring Applications"* at Bi-Weekly Seminar, 15th December 2021, Mahatma Gandhi University, INDIA.

4 **Invited Talk** on *"Electrospun multiferroic PVDF/Nickel ferrite/Nano cellulose composite fibres: A multi-functional piezoelectric energy harvesting system"* at International Conference on

Contemporary Catalysis, Energy and Sustainability-2022, (ICCC-2022), 21-23, June 2022, Mahatma Gandhi University, INDIA.

5 **Invited Talk on** "A future perspective of developing sustainable mechanical energy harvesting devices" at MHRD-SPARC Sponsored One Day ONLINE Workshop on Piezoelectric Sensors - Towards Product Development, 03, August 2022, VIT-Vellore, INDIA.