
Dr. B. GNANA SUNDARA RAJ, M.Sc., Ph.D

Assistant Professor - III, Department of Chemistry
Velammal College of Engineering and Technology (Autonomous),
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Educational Qualifications:

Degree	Subject / Course	University / Institution	Year of Completion
Ph.D	Chemistry	National Institute of Technology, Tiruchirappalli	2017
M.Sc	Chemistry	Vivekananda College, Madurai Kamaraj University, Madurai	2006
B.Sc	Chemistry	Ayya Nadar Janaki Ammal College, Madurai Kamaraj University, Madurai	2004

Research Experience: 5 Years**Research Experience:**

Name of the Institution	Position	Duration		Experience
		From	To	
University of Concepcion, Concepcion, Chile	Principal Investigator (FONDECYT Postdoctoral 2019)	14.03.2019	14.03.2022	3 years
Chonbuk National University, Jeonju, South Korea	Postdoctoral fellow	01.06.2017	28.02.2019	1 year 9 months
SRM University, Kattankulathur, Chennai	Postdoctoral fellow	13.03.2017	31.05.2017	2.5 months

Honors/ Awards

- ✓ Selected for **Principal Investigator** by FONDECYT Postdoctoral contest 2019 (March 2019-March 2022) at University of Concepcion, Concepcion, Chile funded by **FONDECYT Postdoctoral program.**

- ✓ Selected for **Postdoctoral fellow** (July 2017-February 2019) at Chonbuk National University, Jeonju, South Korea funded by **BK-21 plus program**.
- ✓ Selected for Project **Senior Research Fellowship (SRF)** (May 2012 – April 2015) funded by Council of Scientific and Industrial Research (CSIR), Government of India.
- ✓ Selected for **Project Assistant- III** (10th Feb 2010 to 31st Mar 2012) at CSIR- CENTRAL ELECTROCHEMICAL RESEARCH INSTITUTE (CSIR-CECRI), Tamil Nadu, India.
- ✓ Selected for **Project Assistant- II** (22nd Mar 2007 to 26th Dec 2009) CSIR- CENTRAL ELECTROCHEMICAL RESEARCH INSTITUTE (CSIR-CECRI), Tamil Nadu, India.

Research areas of interests and Expertise:

📖 Energy Storage and Conversion device : Supercapacitors, Li-ion, Li-air batteries

📖 Sensors : Electrochemical sensors, electrochemical biosensors

Scientific Publications: 19

List of Papers Published:

1. Facile sonochemical synthesis of nanostructured FeWO₄-rGO and CuCo₂O₄ nanocomposite for high-rate capability and stable asymmetric (CuCo₂O₄//FeWO₄-rGO) supercapacitors

B. Gnana Sundara Raj, R. V. Mangalaraja, V. Vinoth, N. Pugazhenthiran, F. V. Herrera, RO.MU. Jauhar, S. Anandan

Journal of Alloys and Compounds, 968 (2023) 172156 [**Impact Factor: 6.2**]

(Corresponding Author)

2. A novel Fe₂O₃-decorated N-doped CNT porous composites derived from tubular polypyrrole with excellent rate capability and cycle stability as advanced supercapacitor anode materials

B. Gnana Sundara Raj, T. H. Ko, J. Acharya, M. K. Seo, M. S. Khil, H. Y. Kim, B. S. Kim

Electrochimica Acta, 334 (2020) 135627 [**Impact Factor: 6.901**]

3. Pseudocapacitive performance of Mn₃O₄ –SnO₂ hybrid nanoparticles synthesized via ultrasonication approach

B. Gnana Sundara Raj, R. Angulakshmi, N. Baskaran, J. J. Wu, S. Anandan, M. Ashokkumar

Journal of Applied Electrochemistry, 50 (2020) 609–619 [**Impact Factor: 2.800**]

4. Facile one pot sonochemical synthesis of $\text{CoFe}_2\text{O}_4/\text{MWCNTs}$ hybrids with well-dispersed MWCNTs for asymmetric hybrid supercapacitor applications

J. Acharya, B. Gnana Sundara Raj, T. H. Ko, M. S. Khil, H. Y. Kim, B. S. Kim

International Journal of Hydrogen Energy, 40 (2020) 3073-3085 [**Impact Factor: 5.816**]

5. Pseudocapacitive Properties of Nickel Oxide Nanoparticles Synthesized via Ultrasonication Approach

B. Gnana Sundara Raj, N. Baskaran, A. M. Asiri, J. J. Wu, S. Anandan

Ionics, 26 (2020) 953 – 960 [**Impact Factor: 2.817**]

6. Paper flower-derived porous carbons with high-capacitance by chemical and physical activation for sustainable applications

P. Veerakumar, T. Maiyalagan, B. Gnana Sundara Raj, K. Guruprasad, Z. Jiang, K.C. Lin,

Arabian Journal of Chemistry, 13 (2020) 2995–3007 [**Impact Factor: 5.165**]

7. One-pot sonochemical synthesis of hierarchical MnWO_4 microflowers as effective electrodes in neutral electrolyte for high performance asymmetric supercapacitors

B. Gnana Sundara Raj, A. Jiwan, M. K. Seo, M. S. Khil, H. Y. Kim, B. S. Kim

International Journal of Hydrogen Energy, 44 (2019) 10838-10851 [**Impact Factor: 5.816**]

8. Ultrasound assisted formation of Mn_2SnO_4 nanocube as electrodes for high performance symmetrical hybrid supercapacitors

B. Gnana Sundara Raj, H. Y. Kim, B. S. Kim

Electrochimica Acta, 278 (2018) 93-105 [**Impact Factor: 6.901**]

9. Sonochemical synthesis of Co_2SnO_4 nanocubes for supercapacitor applications

B. Gnana Sundara Raj, S. Bhuvaneshwari, J.J. Wu, A. M. Asiri, S. Anandan

Ultrasonics – Sonochemistry, 41 (2018) 435–440 [**Impact Factor: 7.491**]

10. Facile ultrasound assisted synthesis of monodisperse spherical $\text{CuMn}(\text{OH})_3\text{NO}_3$ nanoparticles for energy storage applications

S. Anandan, B. Gnana Sundara Raj, A. V. Emeline, D. Bahnemann, J. J. Wu

Journal of Alloys and Compounds, 699 (2017) 745–750. [**Impact Factor: 5.316**]

11. Hybrid $\text{SnO}_2\text{--Co}_3\text{O}_4$ nanocubes prepared via a $\text{CoSn}(\text{OH})_6$ intermediate through a sonochemical route for energy storage applications.

B. Gnana Sundara Raj, J. J. Wu, A. M. Asiri and S. Anandan

RSC Advances, 6 (2016) 33361- 33368. [**Impact Factor: 3.361**]

12. Synthesis of morphology-controlled bismutite for selective applications.

T. Selvamani, B. Gnana Sundara Raj, S. Anandan, J. J. Wu and M. Ashokkumar

Physical Chemistry Chemical Physics, 18 (2016) 7768-7779. [**Impact Factor: 3.676**]

13. Ultrasound assisted synthesis of Mn₃O₄ nanoparticles anchored graphene nanosheets for supercapacitor applications

B. Gnana Sundara Raj, R. R. Ramprasad, A. M. Asiri, J. J. Wu and S. Anandan

Electrochimica Acta, 156 (2015) 127–137. [**Impact Factor: 6.901**]

14. Synthesis of Mn₃O₄ nanoparticles via chemical precipitation approach for supercapacitor application

B. Gnana Sundara Raj, A. M. Asiri, J. J. Wu and S. Anandan

Journal of Alloys and Compounds, 636 (2015) 234–240. [**Impact Factor: 5.316**]

15. Sonochemically synthesized MnO₂ nanoparticles as electrode material for supercapacitors

B. Gnana Sundara Raj, A. M. Asiri, A. H. Qusti, J. J. Wu and S. Anandan,

Ultrasonics Sonochemistry, 21 (2014) 1933–1938. [**Impact Factor: 7.491**]

16. Facile synthesis of hollow sphere amorphous MnO₂: the formation mechanism, morphology and effect of a bivalent cation-containing electrolyte on its supercapacitive behavior

Y. Munaiah, B. Gnana Sundara Raj, T. Prem Kumar, and P. Ragupathy

Journal of Materials Chemistry A, 1 (2013) 4300-4306. [**Impact Factor: 12.732**]

17. Sonochemical synthesis of manganese (II) hydroxide for supercapacitor applications.

S. Anandan, B. Gnana Sundara Raj, G. J. Lee, J. J. Wu

Materials Research Bulletin, 48 (2013) 3357–3361. [**Impact Factor: 4.641**]

18. Synthesis, characterization of poly (4, 4'-dioctyloxy-3, 3'-biphenylene vinylene) s and their optical properties

V. Sannasi, B. Gnana Sundara Raj, S. Meenakshi, D. Jeyakumar

Iranian Polymer Journal, 20 (2011) 633-644. [**Impact Factor: 1.899**]

19. Synthesis of Alternate- Block Copolymers of Poly 1, 4-Dioctoxy Phenylene Vinylenes with Varying Positional Naphthalene Segment

V. Sannasi, P. Manikandan, B. Gnana Sundara Raj, M. Vijayan and D. Jeyakumar

Iranian Polymer Journal, 19 (2010) 1-13. [**Impact Factor: 1.899**]

List of Book Chapter Published:

1. Ultra-thin, flexible hybrid transition metal oxide nanostructures for renewable energy storage devices

B. Gnana Sundara Raj, S. Anandan, R.V. Mangalaraja

IOP Publishing, Chapter 6 (2022) 1-23

International / National Conference Presented/Attended:

- Actively participated in the **International Meeting on Energy Storage Devices (IMESD-18)** held at Indian Institute of Technology, Roorkee, India during December 10-12, 2018 and **presented paper** titled “Sonochemical synthesis of nanostructured metal oxides as efficient electrode materials for high-performance energy storage applications”.
- Actively participated in the **NANO KOREA 2018 SYMPOSIUM & EXHIBITION** held at KINTEX, Korea during July 10-13, 2018 and **presented paper** titled “Facile Synthesis of N-Doped rGO-Decorated Fe₂O₃ Negative Electrodes for Asymmetric Supercapacitor Application”.
- Actively participated in the **National Convention of Electrochemistry (NCE-19)** held at National Institute of Technology, Tiruchirappalli, India during March 28-29, 2016.
- Actively participated in the **10th Mid-Year CHEMICAL RESEARCH SOCIETY OF INDIA (CRSI) SYMPOSIUM IN CHEMISTRY** held at National Institute of Technology, Tiruchirappalli, India during July 23-25, 2015.
- Actively participated in the **NATIONAL CONFERENCE ON CHEMOSENSORS (NCC 2013)** held at National Institute of Technology, Tiruchirappalli, India during September 19-20, 2013.
- Actively participated in the **6th Asian Conference on ELECTROCHEMICAL POWER SOURCES (ACPES-6)** held at Hotel Green Park, Chennai, India during January 5-8, 2012 and **presented paper** titled “*Synthesis and electrochemical performance of Ni-substituted LiFeO₄/graphite*”.

- Actively participated in the **6th Asian Conference on ELECTROCHEMICAL POWER SOURCES** (ACPES-6) held at Hotel Green Park, Chennai, India during January 5-8, 2012 and **presented paper** titled “*Synthesis and characterization of lithium-rich layered cathode material, $Li[Li_{0.2}Ni_{0.2}Mn_{0.6}]O_2$* ”.
- Actively participated in the **Ninth International Symposium on Advances in Electrochemical Science and Technology** (ISAEST-9) held at Hotel Green Park, Chennai, India during December 2-4, 2010 and **presented paper** titled “*Combustion synthesis and lithium intercalation properties of $Li[Li_{0.2}Ni_{0.2}Mn_{0.6}] O_2$ cathode materials*”.
- Actively participated in the **International Conference on Electrochemical Power Systems** (ICPES-2008) held at Mascot Hotel, Thiruvananthapuram, Kerala, India during November 26-28, 2008.
- Actively participated in the **National Convention of Electrochemistry** (NCE-14) held at Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam, India during 6-7 December 2007 and **presented paper** titled “*Synthesis and characterization of block co-polymer bearing 2, 5- dioctoxy phenylene and naphyl groups*”.
- Actively participated in the **RECENT TRENDS IN TEXTILE AND ELECTROCHEMICAL SCIENCES** (RATES 2007) held at Algappa University, Karaikudi, India during June 1-2, 2007.

Attended Seminars/Workshops:

- Participated in the Workshop on **Super Conductive Materials and their Fabrication** held at Department of Production Engineering, National Institute of Technology, Tiruchirappalli, India on 17th March 2014. The resource person for the course is **Prof. Dr. Venkat Selvamanickam**, Visiting Professor from University of Houston, Texas.
- Participated in the Two-day Lecture Workshop on **Recent Advances in Materials Chemistry** held at Department of Chemistry, Anna University Tiruchirappalli, India on March 7-8, 2014.
- Participated in the Workshop on **Sustainable Energy Conversion and Storage Devices** held at SRM University, Kattankulathur, India during 2-8 September 2013.

- Participated in the Workshop on **BASIC MOLECULAR SPECTROSCOPY & ELECTROCHEMISTRY** held at CSIR- CENTRAL ELECTROCHEMICAL RESEARCH INSTITUTE (CSIR-CECRI), Karaikudi, India during 6-7 September 2013.

✍ **Google Scholar Citation:**

<https://scholar.google.co.in/citations?user=eMrTplsAAAAJ&hl=en>

✍ **Research Gate:**

<https://www.researchgate.net/profile/Gnana-Sundara-Raj-B>