

**DR. RAJESH KUMAR
POLAGANI**

Associate Professor, Chemical
Engineering Department,
Bheemanna Khandre Institute of
Technology (BKIT), Bhalki,
Bidar, Karnataka - 585328

Mobile: +91-9490379539
Email: rajuche2002@gmail.com
Email: rajeshkumar@recbhalki.org



<https://scholar.google.co.in/citations?user=Ed3qNIQAAAAJ&hl=en>

<https://www.researchgate.net/profile/Rajeshkumar-Polagani>

<https://publons.com/researcher/2902915/dr-rajeshkumar-polagani/>

<https://www.scopus.com/authid/detail.uri?authorId=57216434972>

<https://orcid.org/my-orcid?orcid=0000-0001-6341-9149>

	No. of citations	H-index	I10-index
Google Scholar	145	8	6
Researchgate	123	7	-
Scopus	113	6	-
Web of Science (Publons)	90	6	-

RESEARCH EXPERIENCES/INTERESTS

- Synthesis of nanomaterials for electrodes/electrolytes
- Physico-chemical characterization of nanomaterials
- Fabrication of membrane electrode assembly (MEA) samples
- Fabrication of catalyst coated membrane (CCM) samples
- Electrochemical and physical characterization of MEA's and CCM's through fuel cells
- Degradation and performance testing of polymer electrolyte fuel cell samples
- Process handling, Equipments handling, and Utilities monitoring
- Process intensification and modeling

ACADEMIC QUALIFICATIONS

- **Ph.D** in Chemical Engineering, National Institute of Technology, Warangal, Telangana, India, **April 2019** (Submission: December, 2018).
Thesis Title: Synthesis, characterization of Pt-based electrocatalysts using sonochemical method: Application in PEM fuel cells.
Supervisor: Dr. Shirish H. Sonawane, Professor, Department of Chemical Engineering, NIT Warangal.
- **M.Tech** in Chemical Engineering, Osmania University, Hyderabad, Telangana, India, **March 2010** (Submission: September, 2009).
Thesis Title: Removal of cadmium and zinc ions from aqueous solutions by using low cost adsorbents.

Supervisor: Dr. V. V. Basava Rao, Professor, Department of Chemical Engineering, University College of Technology, OU.

- **B.Tech** in Chemical Engineering, Jawaharlal Nehru Technological University, Hyderabad, Telangana, India, **March 2006**.

Thesis Title: Effects of solvent saving techniques on economy (@ Dr. Reddy's Laboratories Ltd, Hyderabad, Telangana, India).

Supervisor: Mr. Ravikumar Gujjula, Assistant Professor, Department of Chemical Engineering, Sri Venkateswara Engineering College, Suryapet.

- **Intermediate** in **MPC**, Board of Intermediate Education, Hyderabad, Telangana, India, **March 2002**.
- **SSC**, Board of Secondary Education, Hyderabad, Telangana, India, **March 2000**.

Teaching and Research Experience

1st February 2021 To
Till Date **Associate Professor**
Department of Chemical Engineering,
Bheemanna Khandre Institute of Technology, Bhalki, Karnataka

17th July 2019 To
31st Jan 2021 **Assistant Professor**
Department of Chemical Engineering,
Bheemanna Khandre Institute of Technology, Bhalki, Karnataka

2nd January 2019 To
31st May 2019
(5 Months) **Assistant Professor (Adhoc Faculty)**
Department of Chemical Engineering,
National Institute of Technology, Andhra Pradesh

22nd January 2015 To
16th July 2015
(6 Months) **Junior Research Fellow**
Department of Chemical Engineering,
National Institute of Technology, Warangal, Telangana

Research Project: Prototype Development of Fuel Cell using Nano Functional Materials sponsored by Ministry of Electronics and Information Technology (MeitY), India.

1st May 2014 To
21st January 2015
(9 Months) **Assistant Professor**
Department of Petroleum Engineering,
Adusumilli Vijaya College of Engineering and Research Centre,
Hyderabad, Telangana

12th July 2013 To
30th April 2014
(9 Months) **Assistant Professor (Adhoc Faculty)**
Department of Chemical Engineering,
National Institute of Technology, Warangal (NITW), Telangana

11th February 2012 To
29th June 2013
(1 Year 5 Months) **Assistant Professor**
Department of Chemical Engineering,
Bheemanna Khandre Institute of Technology, Bhalki, Karnataka

3 rd August 2009 To 10 th February 2012 (2 Years 6 Months)	Assistant Professor Department of Bio-Technology, Aurora's Technological and Research Institute, Uppal, Hyderabad, Telangana
7 th August 2006 To 3 rd August 2007 (1 Year)	Lecturer Department of Chemical Engineering, Rural Engineering College, Bhalki, Bidar, Karnataka
20 th Dec 2005 To 7 th February 2006 (45 Days)	Project Trainee Technical Service Department, Dr. Reddy's Laboratories Ltd, API Unit-II, IDA Bollaram, Medak

Research Articles Published

1. **R. K. Polagani** et al. Recent developments in synthesis of Pt and Pt-based nanoparticles as electrocatalysts for oxygen reduction reaction: A review (Under Review).
2. K. N. Dhanavatha, A. F. Khana, **R. K. Polagani**, J. Anireddy "Thermal Pyrolysis of Kusum Press Seed Cake: Production and Characterization of Bio-oil and Bio-char (Under Review, Biochemical Engineering Journal)
3. **R. K. Polagani** et al. "Effect of Ni loading onto Pt/C electrocatalysts synthesized using the sonochemical method for PEM fuel cell: A study of stability, activity, and temperature effect" (Under Review, International Journal of Energy Research).
4. A. Balakrishnan, **R. K. Polagani**, D.V.N. Vo, and M. Chinthala "Removal of tetracycline from wastewater using g-C₃N₄ based photocatalysts: A review" (Under Review, Environmental Research).
5. **R. K. Polagani**, M. A. Devani, G. U. B. Babu, M. Chinthala, K. N. Dhanavath and S. H. Sonawane "Ultrasound assisted impregnation of platinum on carbon for ORR activity in PEM fuel cell" International Journal of Ambient Energy, 2022, 43 (Taylor & Francis, ISSN: 2162-8246, <https://doi.org/10.1080/01430750.2022.2092776>, CS: 3.5, IF: 2.326).
6. **R. K. Polagani**, M. Chinthala and S. H. Sonawane "The effect of Cr alloying with Pt/C as an electrocatalyst for low temperature PEM fuel cell" Energy Sources, Part A: Recovery, Utilization, and Environmental Effects, 2022, 44 (2), 3239-3252 (Taylor & Francis, ISSN: 1556-7230, <https://doi.org/10.1080/15567036.2022.2062493>, CS: 3.4, IF: 3.447).
7. **R. K. Polagani**, P. L. Suryawanshi, S. H. Sonawane and M. Chinthala "Electrocatalytic performance of sonochemically synthesized Pt-Ni/C nanoparticles in fuel cell application" International Journal of Chemical Reactor Engineering, 2021 (De Gruyter, ISSN: 1542-6580, <https://doi.org/10.1515/ijcre-2021-0225>, IF: 1.636).
8. M. Chinthala, A. Balakrishnan, P. Venkataraman, V. M. Gowtham and **R. K. Polagani** "Synthesis and applications of nano-MgO and composites for medicine, energy and environmental remediation: a review" Environmental Chemistry Letters, 2021, 19, 4415-4454 (Springer, ISSN: 1610-3661, <https://doi.org/10.1007/s10311-021-01299-4>, CS: 6.6, IF: 13.615).
9. **R. K. Polagani**, P. L. Suryawanshi, S. P. Gumfekar, S. H. Sonawane, B. B. Kale and M. Ashokkumar "Ultrasound-assisted synthesis of Pt-Co/C bimetallic alloys for oxygen reduction in PEM fuel cells" Sustainable Energy and Fuels, 2018, 2, 1491-1499 (Royal

- Society of Chemistry, ISSN: 2398-4902, <https://doi.org/10.1039/C8SE00100F>, CS: 5.4, IF: 6.813).
10. **R. K. Polagani**, P. L. Suryawanshi, S. P. Gumfekar, B. A. Bhanvase and S. H. Sonawane “Sonochemical synthesis of Pt-Co/C electrocatalyst for PEM fuel cell applications” *Surfaces and Interfaces*, 2018, 12, 116-123 (Elsevier, ISSN: 2468-0230, <https://doi.org/10.1016/j.surfin.2018.04.002>, CS: 4.8, IF: 6.137).
 11. **R. K. Polagani**, P. L. Suryawanshi, S. P. Gumfekar and S. H. Sonawane “Ultrasound-assisted synthesis of conducting polymer-based electrocatalysts for fuel cell applications” *Chemical Engineering & Processing: Process Intensification*, 2017, 121, 50-56 (Elsevier, ISSN: 0255-2701, <https://doi.org/10.1016/j.cep.2017.08.004>, CS: 5.9, IF: 4.264).
 12. P. L. Suryawanshi, S. P. Gumfekar, **R. K. Polagani**, B. B. Kale and S. H. Sonawane “Synthesis of ultra-small platinum nanoparticles in a continuous flow microreactor” *Colloids and Interface Science Communications*, 2016, 13, 6-9 (Elsevier, ISSN: 2215-0382, <https://doi.org/10.1016/j.colcom.2016.05.001>, CS: 4.7, IF: 5.633).
 13. S. Sharada, P. L. Suryawanshi, **R. K. Polagani**, S. P. Gumfekar, T. B. Narsaiah and S. H. Sonawane “Synthesis of palladium nanoparticles using continuous flow microreactor” *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 2016, 498, 297-304 (Elsevier, ISSN: 0927-7757, <https://doi.org/10.1016/j.colsurfa.2016.03.068>, CS: 6.5, IF: 5.518).
 14. **R. K. Polagani**, P. A. Swathanthra, V. V. B. Rao and S. R. M. Rao “Adsorption of cadmium and zinc ions from aqueous solution using low cost adsorbent” *Journal of Applied Sciences*, 2014, 14, 1372-1378 (Asian Network for Scientific Information (ANSI), ISSN: 1812-5654, <https://doi.org/10.3923/jas.2014.1372.1378>).

Book Chapters Published

1. P. Narsimha, **R. K. Polagani**, K. R. R. Pandiyan, P. L. Suryawanshi, R. Vooradi, K. A. Kishore and S. H. Sonawane “Synthesis of nanomaterials for energy generation and storage applications” in “Nanotechnology for Energy and Environmental Engineering, Green Energy and Technology,” Springer Nature Switzerland AG, 2020, 9, 215-229, ISBN: 9783030337735, https://doi.org/10.1007/978-3-030-33774-2_9.
2. P. L. Suryawanshi, **R. K. Polagani** and S. H. Sonawane “Synthesis of nanomaterials for fuel cell applications” in “Nanomaterials for Green Energy” Apple Academic Press, 2018, 7, 205-226, ISBN: 9780128137314, <https://doi.org/10.1016/B978-0-12-813731-4.00007-2>.
3. P. A. Swanthanthra, S. N. Bahamani, Bhavana and **R. K. Polagani** “Adsorption studies on removal of cadmium (ii) from aqueous solution” in “Innovative Technologies for the Treatment of Industrial Wastewater: A Sustainable Approach” Apple Academic Press, 2017, 7, 165-177, ISBN: 9781771884983, <https://doi.org/10.1201/9781315365725-7>.

Patents Filed

1. S. H. Sonawane, P. L. Suryawanshi, **R. K. Polagani** and B. B. Kale (2017) “Constructive design and fabrication of polymer electrolyte membrane (PEM) fuel cell stack and its components” Application No.: 201741033677 A, Publication Date: 06/10/2017.

2. S. H. Sonawane, P. L. Suryawanshi, **R. K. Polagani**, B. B. Kale and M. V. Kulkarni (2015) "Partial replacement of Pt catalyst using non-noble functional nanomaterials" Application No.: 5619/CHE/2015 A, Publication Date: 06/11/2015.

Conferences Presented

1. **R. K. Polagani**, S. H. Sonawane "Sonochemical synthesis of Pt-Cr/C electrocatalysts for oxygen reduction reaction in PEM fuel cells" presented a paper in International Conference on Recent Advances in Chemical Engineering-2020 (RACE-2020) on 8th & 9th January, 2020 at University College of Technology, Osmania University, Hyderabad, Telangana, India.
2. Ch. Mahendra, **R. K. Polagani**, D. Mishra, H. Shreya, H. B. Kruthi "A generalized equilibrium based simulation of biomass gasification using ASPEN PLUS" presented a paper in International Conference on Recent Advances in Chemical Engineering-2020 (RACE-2020) on 8th & 9th January, 2020 at University College of Technology, Osmania University, Hyderabad.
3. **R. K. Polagani**, P. L. Suryawanshi, S. H. Sonawane "Synthesis of carbon supported Pt & Co bimetallic electrocatalysts for PEM fuel cells" presented a paper in Research Conclave-2017 organized by National Institute of Technology, Warangal (NITW) during 18th - 19th March 17.
4. **R. K. Polagani**, P. L. Suryawanshi and S. H. Sonawane "Ultrasound assisted synthesis of Pt₃-Co₁/C cathode electrocatalysts for PEM fuel cells" presented a poster in International Conference on Advanced Rechargeable Batteries & Allied Materials-2017 (ICARBM-2017) during 8th - 10th March 2017 organized by C-MET, Pune, India.
5. **R. K. Polagani**, P. L. Suryawanshi and S. H. Sonawane "Preparation of carbon-supported nanocatalysts for PEM fuel cells" presented a paper in CHEMCON-2015 during 27th - 30th December, 2015 organized by Department of Chemical Engineering, IIT-Guwahati.
6. P. L. Suryawanshi, **R. K. Polagani** and S. H. Sonawane "High temperature PBI membrane for PEM fuel cell application" presented a paper in CHEMCON-2015 during 27th - 30th December, 2015 organized by Department of Chemical Engineering, IIT-Guwahati, India.
7. S. H. Sonawane, P. L. Suryawanshi, **R. K. Polagani** and B. B. Kale "Functional polymer and nano-catalysts for the PEM Fuel cell application" presented a paper in 65th Canadian Chemical Engineering Conference-2015 (CSChE2015) during 4th -7th October 2015 at University of Calgary, Alberta, Canada.
8. **R. K. Polagani**, S. R. M. Rao and V. V. B. Rao "Removal of cadmium and zinc ions from aqueous solution by using low cost adsorbents" accepted a paper in CHEMCON-2009 during 27th - 30th December, 2009 organized by Department of Chemical Engineering, Andhra Univesrity, Vizag, India.

Workshops Organized

1. Organized a five day online faculty development program (FDP) on "Recent Innovations in Chemical Engineering (RICE)" during 29th June - 3rd July 2020 at BKIT, Bhalki.
2. Organized "Scholars Premier League-2016 (Season-7)" during 18th Oct - 20th November, 2016 at National Institute of Technology, Warangal.

3. Organized an International Conference on Chemical and Bioprocess Engineering-India (ICCBPE-IN) by Department of Chemical Engineering, NIT, Warangal during 16th & 17th November, 2013 Acted as Volunteer.
4. Organized a National Level Students Symposium “CHEMVISION-2013” on 13th April, 2013 at BKIT, Bhalki acted as a Member & Accommodation Coordinator.
5. Organized a National Level Technical Meet “(CHARYA-2K5)” acted as Treasurer in my final year B. Tech at SVEC, SRPT.

Subjects Taught

- | | |
|--|---------------------------------|
| ✓ Chemical Reaction Engg. - 1, 2 & Lab | ✓ Food Technology |
| ✓ Momentum Transfer & Lab | ✓ Novel Separation Techniques |
| ✓ Chemical Engg. Thermodynamics | ✓ Process Engineering Economics |

Activities Done

- | | |
|--|---------------------------------|
| ✓ Local Guardian/ Class Coordinator | ✓ NSS & Sports Coordinator |
| ✓ Internship & In-plant Training Coordinator | ✓ IA Test Coordinator |
| ✓ Project & Seminar Coordinator | ✓ Time Table Coordinator |
| | ✓ (SSP) Scholarship Coordinator |

Achievements

- IICHE Life Membership Number: **LM-71386**.
- “Extraction of Essential Oil from Basil Leaves” student project was awarded Rs. 5000/- Financial Assistance for Innovative Projects of final year under-graduate students from VTU.
- Acting as an **Editorial Member/Reviewer** for an International Journal of Progressive Research in Engineering Science and Technology (**IJPREST**) a Peer-Reviewed and Open access international journal.
- Participated actively in the Scholars Premier League (SPL) cricket tournament several times during my Ph.D.
- Acted as Executive member for “Chemical Engineering Association (ChEA)” during 2017-2018 at National Institute of Technology, Warangal.
- Awarded third prize in the essay writing competition on “Preventive Vigilance as a tool of Good Governance” in telugu during observation of Vigilance Awareness Week-2015 from 26th - 31st October, 2015 at NIT, Warangal.
- Acted as Team Coordinator for “National Service Scheme (NSS)” and participated in several camps and social service activities at Edulabad, RR Dist, at ATRI (2011-12).
- Secured 6th rank in PGECET-2007.

- Acted as Team leader for Kabaddi team and secured Runner-up in the intramural college competition in the year 2003 (in my B. Tech first year).
- Acted as Team leader for “National Service Scheme (NSS)” and participated in several camps and social service activities during 5th - 16th February, 2003 at Gandhi Nagar, Suryapet in my graduation (B. Tech first year).

Workshops Attended

- Participated in 5- Day Online Faculty Development Programme on “Green Technologies towards Sustainable Future GTTSF-2022” Jointly Organized by Department of Chemical Engineering, GMR Institute of Technology, Rajam, Srikakulam, Andhra Pradesh, and National Institute of Technology-Warangal, Telangana, India during 8th - 12th March, 22.
- Participated in One week Online STTP on Domain of Academia: Research and Teaching-Learning" organized by the Department of Chemical Engineering, Faculty of Technology and Learning & Development Department, Marwadi University - Rajkot Sponsored by the GUJCOST during 1st - 5th March, 2022
- Attended one-day International Webinar on "Sustainable Development Goals and Chemical Engineering" Organized by Department of Chemical Engineering, Faculty of Technology, Marwadi University, Rajkot, Gujarat, India Sponsored by the GUJCOST on 18th Sept, 2021.
- Participated in 3-day International workshop on “Environment and Energy” organized by Centre for Environment, Institute of Science and Technology, Jawaharlal Nehru Technological University Hyderabad (JNTUH), Kukatpally, Hyderabad during 1st - 3rd March, 2021.
- Participated in one-day Webinar on “Nuclear Energy - Opportunities and Challenges for Chemical Engineers held on 23/12/2020 Organised by Department of Chemical Engineering, NIT Rourkela.
- Attended online STTP on “Industrial Pollution & Control Strategies” organized by Department of Chemical Engineering, Anurag Group of Institutions, Ghatkesar (M), Medchal (D), Telangana held during 5th - 10th October, 2020.
- Attended a webinar series on “Nanoscience and Nanotechnology” organized by School of Technology, PDP, Gandhinagar during 11th - 13th September, 2020.
- Attended a three day webinar on “Waste to Energy” organized by Centre for Environment, IST, JNTU Hyderabad on 19th - 21st September, 2020.
- Attended online workshop on “SWAYAM-NPTEL” on 28th July, 2020 jointly organized by NPTEL-IITM, VTU Belagavi, BKIT Bhalki.

Skills/Strengths

- Product design and process intensification abilities
- Professional way and creative thinking of carrying tasks.
- Good analytical, logical, reasoning & problem solving abilities.
- Hard working, can work in any geographical location.
- Soft skills : MS office, C, C++

References:

Dr. Shirish H. Sonawane,
Professor,
Department of Chemical Engineering,
National Institute of Technology, Warangal
Telangana State-506004
Phone No.: +918332969397,
Email: shirishsonawane09@gmail.com
shirish@nitw.ac.in

Dr. V. V. Basava Rao,
Professor,
Department of Chemical Engineering,
University College of Technology,
Osmania University, Hyderabad,
Telangana State-500007
Phone No.: +919989156705,
Email: basavarao@ouct.ac.in
profbasavarao_1964@yahoo.com

Dr. Muthupandian Ashokkumar,
Professor, School of Chemistry,
Assistant Deputy Vice-Chancellor International,
The University of Melbourne, VIC 3010, Australia
Phone No.: +613833447090
Email: masho@unimelb.edu.au

Dr. Sarang P. Gumfekar,
Assistant Professor,
Department of Chemical Engineering,
Indian Institute of Technology, Ropar,
Punjab, India - 140001
Phone No.: +917620063191
E-mail: sarang.gumfekar@iitrpr.ac.in

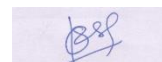
Personal Details

Date of Birth	: 14 th March 1985
Sex	: Male
Father's Name	: Late Polagoni. Sathaiiah
Mother's Name	: Polagoni. Venkatamma
Nationality	: Indian
Marital Status	: Married
Languages Know	: English, Telugu and Hindi S/o Polagoni. Venkatamma, H. No.: 5-65, Near Gramapanchayath,
Permanent Address	: Urumadla (Vill), Chityal (Man), Nalgonda (Dist), Telangana State, Pin: 508114
Strengths	: Zeal to learn, Flexible
Hobbies	: Playing Cricket, Listening Music

Declaration

I believe that I will contribute the best of my potential to the growth of my organization. I hereby declare that the information furnished above is true to the best of my knowledge.

Date:
Place: Hyderabad



(Dr. Rajeshkumar Polagani)