

Career Objective

Aspiring nanotechnology and chemistry researcher seeking to leverage my expertise in advanced functional fluids and surface chemistry within an innovative research environment. Passionate about formulation of fluids, collaborating with interdisciplinary teams to develop groundbreaking solutions, design and execute cutting-edge experiments, and contribute to impactful scientific advancements. Committed to continuous learning, problem-solving, and pushing the boundaries of nanotechnology applications and address complex industrial challenges

EMPLOYMENT

Junior Research Specialist

The Łukasiewicz Research Network—The Institute of Heavy Organic Synthesis "Blachownia," Kędzierzyn-Koźle, Poland
07/2023-Present

Specialty Chemistry Research Group

- Organic chemistry and Formulation science
- Nanofluids/ functional fluids formulation
- Surface Chemistry
- Corrosion tests on fluids

Research Intern

Laboratory of Coordination Chemistry, CNRS, Toulouse, France
05/2022 - 10/2022

"**Nanochemistry, organization and sensors- Team T**" Research Intern under **NanoX Internship** program .

- Organic and coordination chemistry
- Synthesis of Metallic boride complexes
- Nuclear magnetic resonance

PROJECTS

1. Formulation of **Semi-synthetic HFAE oil** concentrate for the production of micro-emulsions with a specific concentration of base fluid and high percentage of water with additives to be used in the mining industry as metal-working fluids, associated with *Łukasiewicz Research Network Institute of Heavy Organic Synthesis "Blachownia"-2025*

2. "Heat transfer fluids—High-performance dielectric fluids for direct cooling in Data centers" utilizing the immersion cooling technology for transfer of heat produced by electronic components in big data centres, which requires high breakdown voltage, zero electrical conductivity and efficient thermal properties with good corrosion performance, associated with *Łukasiewicz Research Network Institute of Heavy Organic Synthesis "Blachownia"-2024-2025*

3. Dielectric nanofluids based on **Boron nitride nanotubes** for direct cooling of electric vehicle batteries, associated with *Łukasiewicz Research Network Institute of Heavy Organic Synthesis "Blachownia,"- 2024-2025*

4. "Nanofluids for Heat Transfer Applications—ANTI-FREEZE ADDITIVES IN COOLANTS FOR HYBRID VEHICLES" Utilizing the thermal enhancement of nanoparticles (Al₂O₃, MgO, CuO, SiO₂, BN) in different base fluids and conducting stability studies and methods to increase their stability for both direct and indirect cooling applications, associated with *Łukasiewicz Research Network Institute of Heavy Organic Synthesis "Blachownia"- 2023-2025*

5. Member of LUBRINAN-POIR 04.01.04-00-0017/20 project, associated with *Łukasiewicz Research Network - Institute of Heavy Organic Synthesis "Blachownia"- Improvement of the performance characteristics of industrial lubricants by nano-additives-, 2024*

6. "Anti-icing fluids for aviation industries based on propylene glycol and suitable additives to provide frost protection" associated with *Łukasiewicz Research Network Institute of Heavy Organic Synthesis "Blachownia"-2023-2024*

7. Literature Survey and Research on "Fabrication of Organic-Inorganic Halide Perovskites for LED applications" at *Amity University, Noida*

8. A minor project on "**Studies on CdS/Zn(OH)₂ Core Shell Nanostructures**" at *Amity University, Noida*

9. A minor project at Center for Nanoscience and Technology on "**Synthesis of TiO₂ nanoparticles by Hydrolysis and Peptization method**" at *Anna University, Chennai*

EDUCATION

Master of Technology in Nanotechnology

Amity University • Noida, Uttar Pradesh- Graduated on 06/2022

- **GPA 9.54 / 10**
- *Nanoscience and Technology*
- *Nanopolymers*
- *Synthesis methodologies and characterization techniques*

Bachelor of Technology in Nanoscience and Technology

K.S.Rangasamy College of Technology• Tiruchengode, Tamilnadu- Graduated on 06/2018

- **GPA 7 / 10**
- *Laboratory skills*
- *Nanomaterials synthesis and characterization*
- *Material science and chemistry for nanotechnologist*

Thesis

1. **Masters Thesis** on "**Tungsten Oxide/ Tungsten Sulfide Hybrid Nanostructures**" at *M.S.Ramaiah Institute of Technology, Bengaluru* - The aim of developing high-quality WO₃ and WS₂ hybrid nanostructures by Direct Mixing with XRD, FTIR, UV-vis and PL spectroscopy analysis. Computational analysis were also done to study their band gap and density of states

2. **Bachelors Thesis** on "**Synthesis and Characterization of Titanium Dioxide Nanoparticles for photokilling of Bacteria**" at *Anna University, Chennai* - TiO₂ nanoparticles were prepared by simple sol-gel method and characterized using UV- vis spectroscopy, XRD and studies on their antibacterial inhibition was conducted

Publications

1. D.L. Shruthi , G.N. Anil Kumar , Rahul Venugopal., **Hydrothermal synthesis, structural, spectroscopic, DFT, and luminescence studies of WO₃/WS₂ nanostructures.**, 2023-08-01 | Materials Today: Proceedings, DOI: 10.1016/j.matpr.2023.07.317

Patents

1. Co-author of patent **PLP 448068** : Lubricating oil dispersion with an additive based on silica nanoparticles and a method for producing a lubricating oil dispersion based on silica nanoparticles

Internships

1. Internship at **Laboratory of Coordination Chemistry (LCC) of CNRS, France** on "**Synthesis of organometallic precursors for Metallic Borides**" - Synthesis of various metallic boride complexes through organic route such as Nickel, palladium, zirconium, platinum, zinc, molybdenum and Iron complexes and studying their molecular structures with NMR analysis and IR spectra under the guidance of Myrtil KAHN and Richard CLERGEREAUX - 01/05/2022- 01/11/2022

2. Academic Internship at *Amity Institute of Nanotechnology* on "**ZnO Transparent Conductive Oxides—TCOs**" - 05/07/2021 -05/08/2021

Academic Skills

Formulation specialist, Chemical synthesis, synthesis of organometallic complexes, Glove Box technique, formulation of nanofluids, ASTM & ISO corrosion tests

Characterization Techniques

Brookfield Viscometer, Zetasizer, Breakdown voltage analyzer, Four-ball tester for weld load measurements, Stability analysis using Turbiscan, NMR, UV-Vis, FTIR, Mass Spectroscopy,

Professional Skills

Research Laboratory Experience, Project Management, Origin Pro, Communication skills, Characterization Data Analysis

Career Highlights

1. Poster presentation on **NANOMATERIALS AFFECTING HEAT TRANSFER OF A LIQUID DISPERSION—A REVIEW** at InterNanoPoland 2023, Katowice
2. National Scientific Conference - Sustainable Development in the Area of Cosmetics and Detergents at *Łukasiewicz Research Network Institute of Heavy Organic Synthesis "Blachownia"*, 12 April 2024
3. Completion of Online Certification courses on Chemistry-I and Technical English for Engineers through NPTEL.
4. Successful completion of courses in Office Automation and Visual Basic from *Bharathidasan University*
5. E-workshop on "Energetic Beam Technology: From Materials Engineering to Diagnostics" organized by *Amity Institute of Nanotechnology*
6. *International Conference on Nanomaterials and Nanotechnology (NANO-15) held at KSR Educational Institutions*

Links

- LinkedIN - www.linkedin.com/in/rahul-venugopal-31b30515b
- ORCID - <https://orcid.org/0000-0002-2307-8367>

Languages Known

English, Tamil

Personal Details

Gender : Male
DoB: 03/January/1997
Nationality: Indian
Current Residence: Kedzierzyn-Kozle, Poland

I declare that all information provided in this CV is accurate and truthful to the best of my knowledge and belief.

Rahul Venugopal