

Raghavendra Prasad J, Ph.D.

Chemistry Synthesis/Formulation and Product Development



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Address : Bangalore, Karnataka-560100

Education: **Ph.D**

Publications: **8**

Conference proceedings: **7**

Patents: **2 USA patents** (Docket No. Alloted)

Preferable job location = Anywhere in **India**

Total experience : 5.0 y

Ph.D. = 1.7 y (Synthesis/formulation and product development)

M. Sc. = 3.3 y (Organic synthesis)

Objective

Passionate, business-focused, and result-oriented "Scientific Professional". Seeking a project development position, where there is a need for a variety of responsibilities ranging from new material synthesis, formulation development, sourcing, benchmark, scaling-up, and manufacturing. Applying cutting-edge techniques to develop profitable products in alignment with the company's core strategy.

Speciality and strength

- ✓ Ability to analyze the industry trend and invent a new product or application in accordance with the company's core strategy and simplify the process.
- ✓ Ability to collaborate with internal and external stakeholders for effective, fast and focussed execution of cutting edge technologies.
- ✓ Ability to a partnership with a strategic marketing group for the new opportunity assessment.
- ✓ Experience in design and execute experiments related to organic and silicon polymer materials.
- ✓ experience in silicone polymer-based formulation, processing and product development in coatings
- ✓ Familiarity in working with radiation and thermal curing technology.
- ✓ Knowledge of polymer testing, analysis, characterization and commercialization methods
- ✓ Sound knowledge of polymer testing, analysis and characterization, and commercialization methods
- ✓ Commendable knowledge of Silicone chemistry, specialty epoxy resins, reactive diluents, curing agents, accelerators and catalyst formulation.
- ✓ Ability to communicate with clients and deliver scientific presentations to them.

Skills

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|---|---|---|
| ✓ Silicon chemistry, | ✓ Coating application (clear coatings and Matte coatings) | ✓ Strong ownership quality and accountability |
| ✓ Polymer and organic synthesis | ✓ Structure-Property relationships studies | ✓ Quick learner |
| ✓ Analytical techniques and material characterization | ✓ Thermal and radiation curing technology | ✓ Profitable and customer focussed |
| ✓ Surface modification | ✓ 5S and HSE compliance | ✓ Invent and simplify |
| ✓ Formulation development | ✓ IP evaluation | ✓ Collaborate and speedy execution |
| ✓ New product development | ✓ SOPs preparation | ✓ Growth mindset |
| ✓ IP evaluation | ✓ Cost optimization | |
| ✓ Benchmark analysis | | |
| ✓ Natural product extraction | | |

Recognition

- ✓ Visiting Research Fellow @ SMART Center, **University of New South Wales (UNSW), Sydney, Australia (2016)**.
- ✓ The **best research poster award** in 6th Annual Karnataka Science and Technology Academy Conference, India (2016)

Work experience

Currently Not Working (Wife health concern)

Jan 2018- April-2020

I am currently not working from august 2018.

Reason: My wife's health situation was critical during the time and required my care for a longer duration. The unavoidable circumstance and situation forced me to take a career break. God's grace currently she recovered and doing good.

The toughest time of my life makes me build a better personality than ever before. I invested the available time in this break to improve my personality development, decision making, control emotions, critical thinking, consumer behavior, People management and also spent time in teaching kids and college students.

With a well-molded personality, to get back to my career life I am actively looking for a suitable job that matches my interest and experience.

Being a research professional, ability to learn quickly, strong ownership qualities with a winning mindset and ability lead the team, I will assure you, I will do justice for the job beyond expectation with long term commitment and will be a great resource person for the organization.

Note: Open for the fresher position for the reason I have a career break.

2. Momentive performance material (India) pvt. ltd. Advanced scientist

June-2017-
July 2018

- ✓ Synthesis and characterization of functional silicone resin, hybrids and polymers.
- ✓ Designating and developing of protective coating formulation for automobile plastic and automobile metal (aluminum). The different coating formulations include
 - Clearcoat for plastics.
 - Clearcoat for automobile metals like aluminum and steel.
 - Matte coat for automobile metal like aluminum and steel.
- ✓ Benchmark competitive products to understand the value vs competition.
- ✓ Maintenance of existing global products and troubleshooting of their complaints by altering recipes.
- ✓ Part of innovation context and ideation techniques to develop new technology concepts that enable new product properties as well as applications.
- ✓ Taking part in environment-friendly and next-generation innovation projects.
- ✓ Designing experiments and interpretation of the optimized formulation along with the interaction factors.
- ✓ Lab and pilot scale capability demonstration of new resins and composites.
- ✓ Stronger communication skills within the team as well as the clients.
- ✓ Develop and establish intellectual property through filing of patents and documenting trade secrets
- ✓ Stronger interaction skills with teams like IP team, material procurement, material suppliers and good in cross-collaboration with different teams to explore the possibilities.
- ✓ Maintaining 5S and HSE compliance.

a. Protective matt-finished hard coat for bulk aluminum

- ✓ Analyze benchmark sample
- ✓ Identify technical approaches
- ✓ Prepare stable sol-gel hard coat involving matting agents.
- ✓ Apply new formulations on aluminum substrates and evaluate performance (visual appearance, Adhesion, Abrasion).
- ✓ Optimize for the matting agent load, abrasion, curing conditions. etc,
- ✓ Long-term aging studies like corrosion test, CASS test, acid rain test, car wash test, etc.
- ✓ Samples shipment to validate and DOE of the entire process.

b. CeO₂ nanoparticle-based clearcoat with improved corrosion resistance for application on metal surfaces

- ✓ The Project value proposition.
- ✓ Prepare stable clear coat formulation involving CeO₂ and silica nanoparticles by sol-gel method.
- ✓ Evaluate the storage stability of the new formulations.
- ✓ Apply new formulations on different substrates and evaluate basic coating properties (appearance, adhesion, abrasion)
- ✓ Complete coating performance studies against pH and corrosion resistance.
- ✓ Optimize coating formulations concerning nanoparticles and silanes loading to demonstrate improved corrosion performance.

c. Collaboration study to overcome long term issue in one of the commercial product

- ✓ Synthesis of non-migrating UV absorbable copolymer for primers
- ✓ Identify the synthetic route and procure required chemicals.
- ✓ Synthesis of designed UV-copolymer
- ✓ Purification and characterization of synthesized copolymers.
- ✓ Primer coating on automobile plastic

d. Innovation contest: Energy efficient smart coating for rooftop

- ✓ Monitor emerging trends and competitive activities in roof coating technology.
- ✓ Fundamental understanding of technologies associated with the smart city concept.
- ✓ Research, identify, explore and prove the feasibility of novel technology in roof coating applications
- ✓ Conduct applied and fundamental research on the relationship of properties/performance of chemicals to their formulation, provide findings to product development teams.
- ✓ Conduct appropriate testing and develop recommendations/contingency plans based on findings
- ✓ IP explores to evaluate the technology developed in the forum.

Work Experience

2. Momentive performance material (India) pvt. ltd Post doctoral scientist

Dec-2016-
June 2017

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- ✓ Developed Momentives proprietary packaging and protective coating, adhesives and elastomer technology.
 - ✓ Structure-property understanding and formulation optimization, repeatability and reproducibility for curable/non-curable formulation with functional silicone, filler systems and additives.
 - ✓ Experienced in designed and synthesis of curable/non-curable functional siloxane, copolymers/siloxane resins/siloxane particles,
 - ✓ Developed knowledge on curing technology
 - ✓ Material characterization
 - ✓ Formulation and product development.
 - ✓ Synthesis of functionalized tosparyl, ladder poly-silsesquioxane, polysilsesquioxane and POSS.
 - ✓ Understanding of manufacturing processes and consumer behavior.
 - ✓ Convert the idea into results and validate it with the internal stakeholders.
 - ✓ Record the activities performed, results obtained, the conclusion drawn and explore feature possibilities.

3. Anthem bio-science pvt. ltd. Bangalore Organic chemistry synthesis

Sep -2009-
Jan- 2013

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- ✓ Synthesis, purification and characterization of active pharmaceutical ingredients (API) and CRO project.
 - ✓ Designing new synthesis processes or improving the existing ones for effective synthesis.
 - ✓ Technology transfer from R&D to production.
 - ✓ Synthesizing target compounds utilizing a blend of both classical and modern technology.
 - ✓ Structural elucidation of organic compounds by the latest spectroscopic techniques such as NMR Spectroscopy, chiral HPLC, GC, FT-IR, UV-Vis Spectrometer, Fluorescence Spectrometer, TEM, LC-MS, etc.
 - ✓ Chromatographic methods.
 - ✓ Communicating effectively in verbal and written forms of research results, issue and plans.

Education

1. Doctor of Philosophy (Ph.D.) Applied chemistry/material science

Jan -2013-
Mar-2017

Area of research : Material science, carbon nanomaterials, electrochemistry, biosensor, catalysis,
Institute : National Institute of technology Karnataka, India, -575025
Thesis title : Carbon nanomaterials and its composites for non-enzymatic electrochemical glucose sensing.
Research supervisor : Prof. B. Ramachandra Bhat

Ph.D. work includes

- ✓ Experience in synthesis of zero/one-dimensional nanoparticles by techniques such as chemical vapor deposition, combustion, carbothermal techniques, and their characterization by analytical techniques.
- ✓ Experience in the synthesis of organic molecules and inorganic metal complexes and their characterization.
- ✓ Experience in using inorganic materials and nanomaterials in catalysis.
- ✓ Experience in homogeneous and heterogeneous catalytic studies.
- ✓ Experience in characterization of various waste materials.
- ✓ Experience in writing research articles, reports and research proposals.
- ✓ Experience in co-supervising bachelors's and masters's students on their projects.
- ✓ Extensive knowledge on principle and interpretation of data from gas chromatography, mass spectroscopy, FTIR, GCMS, TGA, Raman spectroscopy, XPS, XRD, UV-visible spectroscopy, scanning electron microscope, transmission electron microscope, FTIR, LECO carbon analyzer, BET surface area analyzer, CHNS analyzer, chemical vapor deposition techniques.
- ✓ Experience in studying the gas evolution and pyrolytic catalysis reactions by using hyphenated TGA-FTIR-GC/MS technique.

2. Master of Science (M.Sc.) Chemistry

2007-2009

Area: Organic and Analytical Chemistry
Thesis title: Potassium hydride in paraffin: A useful base for organic synthesis
Institute: Bangalore University, India

Patents **Title:** Protective coating composition and a coated metallic substrate comprising the same.
U.S. Utility patent application No.: 16/291,588 and 16/291,551.

Research publications

1. **R. Prasad.** Ganesh. V and B. R. Bhat (2016), Nickel-oxide multiwall carbon-nanotube/reduced graphene oxide a ternary composite for enzyme-free glucose sensing. *RSC Advances*, 6, 62491-62500
2. **Prasad, J.** and Bhat, B.R. (2016). "Electrochemical determination of dopamine using zinc-oxide rod modified carbon paste electrode." *Adv. Sci. Lett.* 22, 921-924.
3. **R. Prasad** and Badekai Ramachandra Bhat (2016), rGO supported Co-Ni bimetallic magnetically separable nanocatalysts for the reduction of 4-Nitrophenol, *Synthetic metals*, 219, 26-32.
4. **Prasad, J.** and Bhat, B.R. (2016) Nickel oxide - multi walled carbon nanotube composite as non-enzymatic electrochemical glucose sensor, *Advanced Science Letters*, 22 (1), 219-222.
5. **Raghavendra Prasad** and Badekai Ramachandra Bhat (2015), Self-assembly synthesis of Co₃O₄/multiwalled carbon nanotube composites: an efficient enzyme-free glucose sensor, *New J. Chem.*, 39, 9735 – 9742.
6. **Raghavendra Prasad** and Badekai Ramachandra Bhat (2015), Multi-wall carbon nanotube–NiO nanoparticle composite as enzyme-free electrochemical glucose sensor, *Sensors and Actuators B: Chemical* 220, 81-90.
7. **Raghavendra Prasad**, NarjesGorjizadeh, RavindraRajarao, VeenaSahajwalla and Badekai Ramachandra Bhat (2015), Plant root nodule like nickel-oxide–multi-walled carbon nanotube composites for non-enzymatic glucose sensors, *RSC Adv.*, 5, 44792-44799.
8. **Raghavendra Prasad J.**, VeenaSahajwalla, Badekai Ramachandra Bhat, Green Approach to Decorate Multi-Walled Carbon Nanotubes by Metal/Metal Oxide Nanoparticles, Elsevier Publication, *Procedia Material Science*. 2014, 5, 69-75.