

# Sujatha Varadarajan

📍 Pune    ✉️ sujavarada@gmail.com    ☎️ +91 8888806426    🔗 LinkedIn

A versatile educationist with a strong passion for teaching and enhancing the teaching-learning process. Brings extensive experience in pedagogical design, curriculum development, and organizing outreach programs and faculty development initiatives. Skilled in research design, undergraduate course development, and multidisciplinary curriculum planning, with a keen interest in educational innovation and academic community building.

## Education

**Tata Institute of Fundamental Research (TIFR), Mumbai**

*Ph.D., Feb 2024*

*Ph.D. in Science Education. Awarded Best Thesis Commendation.*

- **Thesis:** Problem-based Learning in Undergraduate Chemistry Laboratories in India

**Madras University**

*Jun 1991 - Mar 1993*

*M.Sc. in Chemistry (University First Rank Holder)*

**Bharathiar University**

*M.Sc. in Applied Psychology*

## Experience

**Centre Head, Multidisciplinary Curriculum and Pedagogy**

*Jan 2025 - May 2025*

*Maharashtra State Faculty Development Academy, (MSFDA)*

- As Centre Head, I spearhead faculty development programs for teachers all across Maharashtra through formal collaboration with many institutes of eminence and national importance.
- The position also demands academic inputs for the design of in-house programs in general, and multidisciplinary curriculum design in particular.
- Development of online content is one of the most important tasks undertaken as centre head currently.

**Research Scholar**

*Varanasi, India*

*Indian Institute of Technology (IT-BHU)*

*1993 – 1996*

- Conducted research in applied chemistry and toxicology.
- Brief research stints at Central Leather Research Institute, Chennai and Indian Toxicological Research Centre, Lucknow.
- Published three papers, including two in conference proceedings.

**Graduate Student – Science Education**

*Mumbai, India*

*Homi Bhabha Centre for Science Education (TIFR)*

*2018 – 2023*

- Conducted doctoral research on problem-based learning in undergraduate chemistry labs across India.
- Designed pedagogical models emphasizing scaffolding and reflective thinking.

**Visiting Faculty – Chemistry**

*Pune, India*

*Savitribai Phule Pune University*

*2019 – 2022*

- Developed and implemented an inquiry-based chemistry laboratory course.
- Taught Environmental Toxicology to undergraduate and graduate students.

**Teaching Assistant**

*Pune, India*

*Indian Institute of Science Education and Research (IISER)*

*2012 – 2014*

- Supported teaching in trans-disciplinary courses such as Rational Inquiry.
- Designed and led inquiry-based science workshops for high school students.
- Facilitated science education webinars for students and educators.

**Consultant – Science Communication**

*Pune, India*

*MVS Science Center, IUCAA*

*2007 – 2012*

- Designed science communication activities for schools and public engagement.
- Helped establish hands-on science activities in various high schools.
- Conducted workshops for teachers, students, and the public.

**TGT/PGT Science and Chemistry Teacher***Blue Bells Model Public School**Gurgaon, India**2002 – 2005*

- Taught Science and Math at middle school level.
- Taught Chemistry at high school and higher secondary levels.
- Guided students in inter-school science activities and competitions.

**Primary Teacher – Science and Math***St. Joseph's Senior Secondary School**Bhopal, India**1999 – 2002*

- Taught Science and Math to primary-level students.
- Integrated inquiry-based approaches in early science education.

**Workshops and Invited Talks on Inquiry-Based Science Teaching***Colleges, Schools, and Conferences**Various Institutions**2007 – Present*

- Conducted workshops on inquiry-based science teaching at Garware College, Pune; IISER Pune; Modern College, Pune; Vaze College, Mumbai; St. Felix School, Pune; Vidya Niketan, Pune; Scinnovity, Pune,
- delivered invited talks on the teaching-learning process at Pratibha College, Pune; National Safety Organization, Pune; ChemCollective Virtual Workshop, IIT Bombay.

**Editorial and Reviewing Roles, Faculty Facilitation***India and International**Ongoing*

- Reviewer for *Journal of Chemical Education* (Impact Factor: 2.5)
- Reviewer for *Chemistry Education Research and Practice* (Impact Factor: 2.6)
- Editor for *Science Shore*, an e-magazine focused on science education
- Facilitator in Faculty Development Programs across various colleges in Maharashtra

**Publications****Problem-Based Learning (PBL): A literature review of theory and practice in undergraduate chemistry laboratories**

Aug 2024

*S. Varadarajan*, S. Ladage[10.1021/acs.jchemed.3c01335](https://doi.org/10.1021/acs.jchemed.3c01335) **Doing Science: Introducing Scientific Inquiry to Elementary Classes**

Jun 2023

*S. Varadarajan*, S. Sanzgiri*Resonance*, 28(6), 929–944**Introducing Incremental Levels of Inquiry in an Undergraduate Chemistry Laboratory: A Case Study on a Short Lab Course**

Dec 2022

*S. Varadarajan*, S. Ladage*Journal of Chemical Education*, 99(12), 3822–3832**Problem-Based Learning in Undergraduate Chemistry Laboratories in India**

2022

*S. Varadarajan*

Doctoral Dissertation, Tata Institute of Fundamental Research, Mumbai

**Exploring the Role of Scaffolds in Problem-Based Learning (PBL) in an Undergraduate Laboratory**

2021

*S. Varadarajan*, S. Ladage[10.1039/D1RP00180A](https://doi.org/10.1039/D1RP00180A) **Adapting an Inquiry-Based Approach for Undergraduate Chemistry Laboratory: An exploratory study**

2021

*S. Varadarajan*, S. Ladage[10.18520/cs/v121/i3/354-359](https://doi.org/10.18520/cs/v121/i3/354-359) 

## Conference Presentations

---

- **Exploring Higher Education (HE) Teachers' Attempt to Multidisciplinary Curriculum Design.** Conference presentation at *Episteme-10*, HBCSE, Mumbai, January 3–5, 2025.
- **Scaffolding Problem-Based Learning in Undergraduate Laboratories.** Oral presentation at *X-Discipline Conference*, University of Nebraska–Lincoln, USA, March 1–3, 2021.
- **Practicing Science Skills through Virtual Chemistry Laboratory.** Poster presentation at *Methods in Chemistry Education Research (MICER) 2021*, Keele University, UK, May 28, 2021.  
*Co-authors: Anupa Kumbhar and Savita Ladage*
- **Problem-Based Learning: Life-cycle thinking approach to Indigo-dye lab.** Presented at *IUPAC — CCCE 2021*, Canadian Chemistry Conference and Exhibition, August 13–20, 2021.  
*Co-author: Savita Ladage*
- **Science Skills through Chemical Laboratories.** Presented during a *ChemCollective Workshop on Virtual Laboratory*, organized by IIT Bombay for 250 CBSE school teachers, June 17, 2021.
- **Chemistry Laboratory Education in the Digital Era.** Presented at *Conventional and Digital Methods in Chemistry Education (CDMCE)*, organized by NIT Warangal, July 29–31, 2021.
- **Exploring the Role of Scaffolds in Mediating Reflective Thinking: Problem-Based Learning in an Undergraduate Chemistry Laboratory.** Presented at *ECRICE-2020*, Weizmann Institute of Science, Israel.
- **Assessing Small-group Learning in a PBL Undergraduate Chemistry Laboratory.** Presented at *MICER 2020*, University of Edinburgh, UK.


## Achievements

---

- Obtained Proficiency Prize in Inorganic Chemistry and Physics at the undergraduate level
- Secured University First Rank in the M.Sc. (Chemistry) program
- Awarded GATE-93 scholarship for research
- Founded the Funtasktic Science Club for primary and middle school students
- Received the Best Thesis Award from TIFR, Mumbai for Ph.D. research

## References

---

- **Prof. Diane M. Bunce**  
Professor Emerita, Department of Chemistry  
The Catholic University of America, Washington, DC  
*Email:* [Bunce@cua.edu](mailto:Bunce@cua.edu)   
*Phone:* +1 410 279 3724
- **Prof. Savita Ladage**  
Professor and Dean  
Homi Bhabha Centre for Science Education, TIFR, Mumbai  
*Email:* [savital@hbcse.tifr.res.in](mailto:savital@hbcse.tifr.res.in) , [savitaladage@gmail.com](mailto:savitaladage@gmail.com)   
*Phone:* +91 98202 50770
- **Kalyani Gokhale**  
General Manager (Academics)  
Maharashtra State Faculty Development Academy, Pune, Maharashtra  
*Email:* [kalyaniugokhale@gmail.com](mailto:kalyaniugokhale@gmail.com)   
*Phone:* +91 98900 25513