

SWETHA A

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PROFILE SUMMARY

Physics postgraduate with a strong foundation in computational materials science, scientific data analysis, and simulation-driven research. Skilled in Density Functional Theory (DFT), computational modelling, spectroscopy, and scientific computing using Quantum ESPRESSO, BURAI, DS9, and Python. Experienced in analytical studies, technical problem-solving, and handling research datasets. Seeking opportunities in teaching, technical, analytical, research-oriented roles.

CORE COMPETENCIES

- Computational Modelling & Simulation
- Scientific Data Analysis
- Density Functional Theory (DFT)
- Problem Solving & Analytical Thinking
- Scientific Computing
- Technical Documentation & Reporting
- Spectroscopy & Data Interpretation

TECHNICAL SKILLS

Data & Reporting Tools: Microsoft Excel, MS Office Suite, Data Visualization

Programming: C & Python

Simulation Tools: BURAI (DFT simulations), Quantum ESPRESSO, VESTA, XCrySden.

INTERNSHIP

Research Intern – Indian Institute of Astrophysics, Bengaluru

- Retrieved and processed AstroSat/UVIT data from archival databases on a Linux platform.
- Used CURVIT, Python, and DS9 for coordinate extraction, source identification, and analysis of astronomical objects.
- Identified and classified celestial sources such as quasars and blazars using observational data.
- Ensured consistency and accuracy in dataset interpretation

PROJECTS

Influence of Trivalent and Tetravalent Doping in 2a Site of $\text{Na}_5\text{P}(\text{S}_2\text{Cl})_2$ Argyrodite: DFT Study

- Performed DFT simulations using BURAI (Quantum ESPRESSO Interface) to investigate dopant effects on structural stability and electronic properties.
- Conducted structural optimization and band structure analysis
- Evaluated effects of doping on structural and electronic behaviour

Green Synthesis of MgO Nanoparticles using Terminalia Catappa

Synthesized nanoparticles using green synthesis method.

- Performed efficiency analysis and experimental data interpretation to evaluate material performance.
- Organized results and prepared structured technical documentation

WORK EXPERIENCE

Assistant Professor – Physics

Department of Science and Humanities

Sri Sairam College of Engineering,

Anekal, Bengaluru – 562106

August 2026 – Present.

EDUCATION

M. Sc. Physics (2024 – 2026)

Avinashilingam Institute for Home Science and Higher Education for Women,

Coimbatore - 641043

CGPA – 9.27/10

B. Sc. Physics (2021 – 2024)

PSGR Krishnammal College for Women, Coimbatore - 641004

CGPA – 9.14/10

CERTIFICATIONS

- Solar Photovoltaics Fundamentals, Technology and Applications (2022)
- Air Pollution and Control (2025)
- ISRO Start (2025)
- Carbon Accounting for Beginners (2025)

WORKSHOPS & CONFERENCES

- *Mimics of Materials for Aerospace* – Vikram Sarabhai Space Centre (ISRO)
- *Avenues in Physics* – Institute of Mathematical Sciences, Chennai
- *Advances in Physical Sciences* – Indian Institute of Astrophysics & IITs

ADDITIONAL INFORMATION

Languages known: Tamil, English, Telugu, Kannada and Hindi