



RAMA SATYA SAI DURGA PRASAD RAJANA



ACADEMIC DETAILS

Year	Degree / Board	Institute	GPA / Marks(%)
---	M.S.(R) in Electrical Engineering	Indian Institute of Technology Delhi	8.6
2021	B.Tech in Electrical & Electronics Engineering	SASTRA Deemed To Be University	8.2250
2017	Board of Intermediate Andhra Pradesh	Aditya Junior College	98
2015	Board of Secondary Education Andhra Pradesh	Bhashyam High School	9.8

IIT DELHI THESIS

Title: Design and Analysis of Planar Log-Periodic Sawtooth Antennas for Terahertz Applications (May, 2025 - Ongoing)

Supervisor: Prof. Santanu Manna, Department of Electrical Engineering, IIT Delhi

Description:

- **Design:** Full-wave **HFSS** simulation of **planar log-periodic sawtooth antennas**, seven parameters **0.1–1.2 THz**.
- **Metrics:** S11 impedance bandwidth, directivity, gain and radiation pattern.
- **Modeling & layout:** **raphene impedance** via a Python **Drude model**; **Python GDSII** to replace AutoCAD.
- **Fabrication & measurement:** **Gold antenna pattern on Si/SiO₂**; THz detection via **graphene** at the feed point.

CONFERENCE

- **Quantum Devices Conference (QDC–QCSA)** — Josephson junctions, EM simulation & Quantum Tech (June, 2026)
- **SAMDeV 2025**, IIT Kharagpur — poster on THz antenna design and simulation (Dec, 2025)

PROJECTS

- **Cleanroom Processing & THz Device Fabrication (Prof. Samaresh Das / ELP830)**
 - **Hands-on:** Wafer cleaning and handling, 2D-material transfer by mechanical exfoliation, layout design, microscope inspection.
 - **Device fabrication:** **Gold antenna patterns on Si/SiO₂** fabricated in collaboration with the group; graphene feed-point integration for THz detection.
 - **Process exposure:** Class 1000 cleanroom; mask and maskless lithography, etching, sputtering, oxidation.
- **Device Characterization & Measurement Automation (Prof. Santanu Manna)**
 - Python I–V characterization via **Keithley 2401 SMU** with Ge photodetector readout; **HRS750 spectrometer** control in progress.
 - Measurement PCB in **Altium Designer** and **KiCad**; TCP/IP piezo nanopositioner control in a **cryostat (300 K → 4 K)**.
- **Atomistic Device Simulation (IMPULSE Technology)**
 - Nanomaterial and nanodevice modeling with **RESCU** (DFT+DFPT) and **NanoDcal** (DFT+NEGF).
 - Quantum device modeling in **QTCAD** — Poisson–Schrödinger electrostatics, confinement and transport.
- **Parametric Layout Automation Tool (Prof. Santanu Manna)**
 - Python GUI generating parameterized device geometries from seven inputs.
 - Direct **GDSII** output with **KLayout** verification, replacing manual AutoCAD drafting.

TECHNICAL SKILLS

- **Device Simulation:** QTCAD, RESCU, NanoDcal, Ansys Lumerical, Ansys HFSS, Cadence Virtuoso
- **EDA & Layout:** KLayout, AutoCAD, Python GDSII scripting, Altium Designer, KiCad
- **Fabrication (hands-on):** Wafer cleaning and handling, 2D-material integration, layout design, microscope inspection
- **Fabrication (exposure):** Class 1000 cleanroom, mask and maskless lithography, etching, sputtering, oxidation
- **Characterization:** THz measurement, I–V characterization, optical microscopy
- **Instrumentation:** Keithley 2401 SMU, cryostat, piezo nanopositioners, spectrometer; **PyVISA/SCPI** automation
- **Programming & Analysis:** Python, MATLAB, OriginPro, Bash, Git/GitHub

WORK EXPERIENCE

- **TATA Consultancy Services, Hyderabad/Information Security Team** (July, 2021 - October, 2022)
 - Firewall rule-base review, insider-threat analysis, DLP control and technical security assessment, and access reviews

TEACHING ASSISTANTSHIP

Teaching Assistant, Dept of Electrical Engineering, IIT Delhi (2024 – 2026): **Introduction to Electrical Engineering (ELL101)** and **Laboratory (ELP101)**, **Digital Electronics (ELL201, ELL1401)**, **Electromagnetics (ELL212)**

EXTRA CURRICULAR ACTIVITIES

- **Qiskit Advocate**, IBM Quantum. Train with the institute squad for **swimming** and **water polo** at IIT Delhi.



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IIT COURSE

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COURSES DONE

Technology Of Rf And Microwave Solid State Devices, Quantum Electronics, Physics Of Semiconductor Devic,
Quantum Optics, Semiconductor Processing Labor, Selected Topics In Rf-dt-iii, Integrated Photonics