Gyan Kumar Sah

B.Sc. Physics (Honours with Research), SRM University-AP · from Mahottari, Nepal

sahgyan9@gmail.com · gyankumarsah.com.np · github.com/sahgyan9 · LinkedIn

I am a final-year physics student who builds lab instruments and the software that runs them: vacuum and temperature-controlled measurement setups, automated electrical and optical measurements, and hardware for hydrogen cells. I am looking for a six-month research internship in quantum hardware, January to June 2027.

Education

B.Sc. Physics, Honours with Research, *SRM University-AP, India* Aug 2023 – May 2027 (expected)

- Thesis supervisor: Dr. Krishna Prasad Maity. CGPA 9.67/10 after six semesters. Dean's List; 80% merit scholarship.
- Courses include Quantum Mechanics, Solid State Physics, Statistical Physics, Electrodynamics, Analog and Digital Electronics, LabVIEW and ZView, Mathematical Methods in Quantum Computation.
- Earlier: Grade XI–XII at Global School of Science, Kathmandu; school at Lord Bright Wisdom School, Sarlahi, Nepal.

Research

Temperature-controlled measurement setup, *Low Temperature Physics Lab* 2026

Supervisor: Dr. Krishna Prasad Maity | code

- Prepared the lab's vacuum probe station (Janis ST-LN-500) for measurements that run on their own from 300 to 450 K at 10^{-2} mbar. Liquid-nitrogen cooling is planned, not yet running.
- The chamber kept overshooting its target temperature. I ruled out the usual explanation with data, found that the Cryo-con 22C integral setting is a time in seconds, and retuned it: overshoot fell from +4.08 K to +0.22 K.
- Wrote the control software (LabVIEW, then Python) that steps the temperature and runs a Wayne Kerr impedance analyser sweep (20 Hz to 10 MHz) at each step, unattended. Machined the vacuum feedthrough connector on a CNC and built an optically isolated relay cutoff for the heater.

A faster light sensor from CdSe and graphene quantum dots (GQD), *Device Physics Lab* 2025 – 2026

With Akshay Sampath and Nilja George | Supervisor: Dr. Krishna Prasad Maity

- Mixing the two materials made the photodetector respond about ten times faster (rise time 200 ms to 20 ms), from ultraviolet to near-infrared. Responsivity 0.098 A/W; detectivity 1.5×10^{11} Jones.
- I built and automated the measurement rig in LabVIEW (Keithley 2636B, Zurich Instruments MFLI lock-in, Thorlabs LED driver), calibrated LED power with my own Python scripts, and designed the 3D-printed sample holder. A paper with Akshay Sampath is in draft; it has not been submitted.

Magnetic field and photocurrent in chromium-doped CdSe, *Device Physics Lab* Jan – Apr 2026

Funded by the university's UG/PG SEED Grant | With Visitha Padilam | Supervisor: Dr. Krishna Prasad Maity

- Measured current–voltage curves of pristine and 3%, 5%, 7% Cr-doped CdSe in the dark and under light, in a calibrated electromagnet (181 to 5,260 gauss). Data collected; not yet written up.

Materials measurement and characterisation, *SRM University-AP* 2025 – 2026

- **PMN-PT ceramic** (Sep 2026, Device Physics Lab): dielectric spectroscopy from 300 to 460 K with the automated setup above; permittivity peaks near 460 K.
- **MoS_2 thin film** grown by chemical vapour deposition (Sep–Nov 2026): three reports on XRD, XPS and UV spectroscopy.
- **Electrospun polymer nanofibres** (Aug–Nov 2026, course project with Dr. Pranab Mandal): fibres of 100 to 130 nm studied by FESEM, XRD, FTIR and Raman. No silver was detected in the silver-loaded sample.
- **Cobalt thin film** (2025, Exotic Interface Lab): sputtered a 30 nm cobalt Hall bar and attempted an anomalous Hall measurement. No usable data was obtained and the project was discontinued.

Quantum Reference Center, *SRM University-AP* 2026

- Assisting with system integration (vacuum, cryogenics, electronics) while the centre is being set up.

Industry Experience

Production Engineer, *Shakti Photon Solutions Pvt. Ltd., Guntur, India* Feb 2025 – Present

A startup building hydrogen electrolysers and fuel cells. Paid role alongside my degree.

- Fabricated membrane electrode assemblies by ultrasonic spray coating and hot pressing, and wrote the lab procedures for membrane and titanium-felt treatment.
- Designed parts in Fusion 360 and made them by CNC and 3D printing (steel, graphite, acrylic, PTFE). Worked on the design of a 30×30 cm electrolyser. Built an Arduino hydrogen leak detector.
- Commissioned a fuel-cell balance-of-plant system at IIT Delhi and trained the staff there.
- Wrote a Python program that runs electrochemical tests on an ITECH IT-M3902C power supply (code), and

built the company website.

Projects

Superconducting qubit designs in Keysight ADS, *self-directed* Aug 2026

- Designed and simulated (not fabricated) a single transmon with a readout resonator, and two transmons with a bus coupler (qubits near 6.6 and 6.7 GHz, coupling about 6 MHz). Exported the layout to GDSII.

Quantum Ascent, *live* · *code* Jul – Aug 2026

- A free six-step course from a single qubit to the QAOA algorithm, with a circuit simulator in the browser that I checked against Qiskit. My entry for the WISER Education Challenge 2026.

Oberleaf, *code* Sep 2026 – Present

- An open-source LaTeX editor that compiles on the user's own computer and explains 52 common errors in plain English. This CV is written in it.

Friendly Learning SRMAP, *live* Dec 2024 – Present

- A campus website for finding student mentors and looking up faculty research (search over 624 faculty profiles). Mostly solo; early code came from an AI builder. Still small: 27 registered accounts.

NEPSE Portfolio Insight, *code* Jul – Nov 2026

- A private portfolio tracker for Nepal Stock Exchange investors. I pre-registered a backtest of its stock-ranking score; it did not beat a matched benchmark, and I report it that way.

Quantum Double Shield Protocol, *team project, demo* Aug 2025

- BB84 key distribution with a quantum random number generator, simulated in Qiskit. Third place, Amaravati Quantum Valley Hackathon.

Leadership

Track Lead, Technical and Innovation Track, Qiskit Fall Fest 2026, *SRM University-AP* Sep – Oct 2026
qffsrmap2026.com

- Led three student cells (Technical Programs, Hackathon and Competition, Website and Technology) through their heads. With the team, reduced about 60 proposed events to the 20 that could be run.
- Wrote a large part of the festival platform (a team product) and the tool that scored 129 hackathon repositories in the first round. The 24-hour finale had 44 teams and 196 members present.
- Supervised the Quantum Capture the Flag contest, which Jaswanth Kumar Kondameeda built and ran. Taught the hands-on Qiskit session on the first day.

Lead, Aadigyan Winter Youth Program, *IR Council, SRM University-AP* 2024

- Hosted students and teachers from Nepal on campus.

Honours and Training

- QuantaRiSE Quantum Winter Fellowship (selected), QMD Hub, Plaksha University, 14 Dec 2026 – 14 Jan 2027.
- UG/PG SEED Grant, SRM University-AP, 2026. WISER Quantum Algorithm and Hands-on Training, full scholarship, Dec 2025 – Jun 2026.
- Training: WISER Summer Program 2026 (optimisation: classical, AI and quantum); QWorld Quantum Computing and Programming (2026); Quantiverse 2026, CDAC Noida; The Art of Doing Electronics, Coursera (2025).

Skills

Lab: vacuum systems, temperature control, lock-in measurement, source-meter and impedance measurements, sputtering, XRD analysis, CNC machining, 3D printing, Fusion 360.
Software: Python, LabVIEW, Origin, Keysight ADS, Qiskit, LaTeX, TypeScript and React. **Languages:** Nepali, English, Hindi.

Referee

Dr. Krishna Prasad Maity, Department of Physics, SRM University-AP (thesis supervisor). Contact details on request.