
PROFILE

Physics M.S. student at National Central University; B.S. in Physics, 2026.

CORE EXPERTISE

Computational Electromagnetics & FEM: Derive weak formulations, basis functions, and matrix discretizations from electromagnetic and electrostatic governing equations; examine how materials, boundary conditions, meshes, and convergence affect fields and derived quantities.

RF/Microwave Network Analysis: Use multiport S-, Y-, and Z-parameters and their conversions; account for port definitions, reference impedances, and terminations when interpreting reflection and transmission.

Superconducting Circuit Modeling: Connect nodal admittance, modes, and poles to circuit coupling and energy-relaxation questions.

RESEARCH

Floating-Qubit Energy Relaxation Study

Undergraduate thesis, National Central University

Framed the physical model: Applied an admittance-based formulation to describe floating-qubit coupling paths and make the energy-relaxation mechanism explicit enough for analytical and numerical review.

Layout-to-FEM Research Workflow

Research data generation through simulation automation

Built an iteration loop: Developed a data-generation workflow from GDSII layout to FEM simulation, connected to parametric design tooling so layout changes could become solver-ready experiments more quickly.

Used National Center for High-performance Computing (NCHC) resources and mesh-refinement studies to compare solver cost, numerical differences, and reliability. Helped maintain a lab Synology NAS and maintained a personal TrueNAS/Docker environment for research data, backups, and local compute.

SCIENTIFIC SOFTWARE

SCGSim

Superconducting-circuit simulation toolkit · V1 in development

Physical meaning through the workflow: Connects geometry, materials, boundaries, and solver configuration to electromagnetic results with traceable run and result identities.

<https://github.com/OrPenStrike/scgsim>

SCNSim

Superconducting circuit network simulation · V1 in development

Model before result: Keeps authored circuits, ports, selected network views, and S/Y/Z or modal analysis tied to explicit assumptions and reproducible results.

<https://github.com/OrPenStrike/scnsim>

DESIGN SYSTEMS

Askr

Quarto design kit for technical reading

Designed for reading: Shapes typography, page measure, navigation, citations, and callouts into a coherent reading experience for technical documents.

<https://arfiligol.github.io/askr/>

EDUCATION

National Central University

M.S. in Physics · 2026–present

National Central University

B.S. in Physics · 2026