Quantum Fabrication Engineer (4899C) - Physics
University of California, Berkeley

Job Title	Quantum Fabrication Engineer (4899C) - Physics
Department	Physics
Institution	University of California, Berkeley Berkeley, California
Date Posted	Aug. 21, 2025
Application Deadline	Open until filled
Position Start Date	Available immediately
Job Categories	Professional Staff
Academic Field(s)	Physics - General
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Job Description

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About Berkeley

At the University of California, Berkeley, we are dedicated to fostering a community where everyone feels welcome and can thrive. Our culture of openness, freedom and belonging make it a special place for students, faculty and staff.

As a world-leading institution, Berkeley is known for its academic and research excellence, public mission, diverse student body, and commitment to equity and social justice. Since our founding in 1868, we have driven innovation, creating global intellectual, economic and social value.

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We are looking for applicants who reflect California's diversity and want to be part of an inclusive, equity-focused community that views education as a matter of social justice. Please consider whether your values align with our Guiding Values and Principles, Principles of Community, and Strategic Plan.

At UC Berkeley, we believe that learning is a fundamental part of working, and provide space for supportive colleague communities via numerous employee resource groups (staff organizations). Our goal is for everyone on the Berkeley campus to feel supported and equipped to realize their full potential. We actively support this by providing all of our full-time staff employees with at least 80 hours (10 days) of paid time per year to engage in professional development activities. Find out more about how you can grow your career at UC Berkeley.

Departmental Overview

Physics is the largest department in the L&S Division of Mathematical and Physical Sciences. It is ranked as one of the top physics departments in the world, with excellence in research, teaching, and service to the community all highly valued. The department has 80 ladder and active emeriti faculty, 60 career and casual staff, and 300 lecturers, teaching assistants, readers, research personnel, postdocs, fellowship recipients, and visiting scholars. It enrolls 250 graduate students, 250 undergraduate majors, and over 7,000 students in its courses, many with laboratory sections. Its faculty fully participates in teaching and administration and conducts world-class research in campus, local, national, and international laboratories and sites; research activities require active financial arrangements with organizations such as Lawrence Berkeley National Lab. Physics manages 3 distinct campus buildings in its facilities complex with 240,000 assignable square feet, and it also houses and provides services to several research centers and multiple research Laboratories with varying physical environments. It has an active fundraising program.

The Quantum Fabrication Engineer (R&D Engineer 4) is responsible for supporting nanofabrication activities, including the management of cleanroom tools, for research programs carried out by the Quantum Nanoelectronics Laboratory (QNL) in the department of Physics. Carries out engineering activities for quantum devices, configuring and maintaining equipment, managing equipment time for the QNL team, develop fabrication process, and training students and staff on tool usage. In addition, this position will closely interface with researchers at Lawrence Berkeley National Laboratory (LBNL) on fabrication-related activities for joint research programs. The R&D Engineer 4 is a key component of success of the research programs of the department of Physics.

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Application Review Date

The First Review Date for this job is: September 2, 2025 - Open Until Filled

Responsibilities

60% Engineering of Quantum Devices

Serve as project manager for complex engineering assignments related to the end-to-end fabrication of quantum devices based on superconducting circuits. Duties include:

- Performing fabrication activities with a high degree of autonomy for quantum devices in a state-of-the-art Physics department cleanroom, as well as in the Marvell Nanofabrication Laboratory, using modern tools.
- Interfacing with team members to develop a technical understanding of the fabrication requirements for advanced quantum devices, and advising the team on fabrication capabilities and limitations based on extensive technical expertise.
- Developing fabrication recipes and processes that achieve target design parameters for quantum devices.
- Serving as an expert user on fabrication equipment that includes specialty electron beam evaporators (angled deposition, cryo-deposition), sputterers, flip-chip bonders, and scanning electron microscopes.
- Developing and executing plans to perform regular fabrication to provide samples for quantum device team as requested, per provided designs and requirements. This includes both ensuring the process is calibrated and meeting the requirements, as well as providing the samples on time to meet the deadline of the team.

15% Experimental Data Analysis

- Critically analyze experimental data, including that for which no standard analytical procedure or methodology exists, drawing on advanced experience with fabrication processes.
- Determine the source of problems that appear in data, and use astute and seasoned engineering ingenuity to correct them.
- Design fabrication tests and measurement processes to hone in on and correct fabrication issues.

15% Programmatic Responsibilities

- Draft reports detailing cleanroom activities and present the status and progress of fabrication

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activities during team meetings.
- Interface closely with the fabrication lead for the Quantum Information Science and Technology group at Lawrence Berkeley National Laboratory (LBNL) on management of cleanroom processes and tools.
- In collaboration with LBNL staff, develop management plans for time allocation of tools that supports the needs of both Physics department and LBNL for joint projects.
- Create and ensure sharing of documentation on cleanroom procedures and processes that are specific to the fabrication of the team's quantum devices, to ensure safe and effective use of tools and to maintain the team's knowledge base on fabrication processes.
- Represent the PI and team at meetings and conferences on matters related to engineering design considerations and quantum device fabrication.
- Develop requirements and support bid packages for new tools to expand the capabilities of the Physics department cleanroom.
- Develop technical solutions to repair equipment following non-routine failures when within the capabilities of the laboratory. Identify cases when equipment failure is beyond these capabilities, and work with equipment manufacturer to troubleshoot or schedule visit.

10% Assist with laboratory management and facility maintenance, including:

- Providing training to students, postdocs, and other staff on correct usage of fabrication tools and cleanroom procedures, and assisting them in completing fabrication activities when needed to ensure that activities are completed in a timely and efficient manner.
- Overseeing the calibration and maintenance of fabrication tools to ensure high tool availability and performance, and creating related tool-by-tool records of calibration settings and maintenance histories.
- Assisting laboratory management with the allocation of tool time across a range of complex engineering projects that are being executed in parallel.
- Troubleshooting both equipment and facility issues as they arise and advising and/or performing potential fixes, repairs, or arrange for service by external vendors.
- Overseeing the cleanroom activities of students, postdocs, and other research staff to ensure that cleanroom activity is compliant with UCB safety guidelines and applicable Environment, Health & Safety rules and regulations.

Required Qualifications

- Advanced degree in related area and / or equivalent experience / training.

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- Advanced knowledge associated with the planning, development, and fabrication of engineering systems.
- Advanced knowledge of specialized design work as well as the overall field.
- Strong creativity and problem solving abilities to apply principles, practices and procedures within discipline to complete difficult assignments.
- Strong project management skills needed to assume responsibility for accomplishment of research objectives.
- Advanced communication skills, both written and verbal, to convey complex information in a clear and concise manner.
- Advanced interpersonal and presentation skills.
- Ability to work in a highly collaborative manner; readily assess complex challenges and barriers and recommend effective resolutions.
- Demonstrated ability to lead, motivate and influence others.

Salary & Benefits

For information on the comprehensive benefits package offered by the University, please visit the University of California's Compensation & Benefits website.

Under California law, the University of California, Berkeley is required to provide a reasonable estimate of the compensation range for this role and should not offer a salary outside of the range posted in this job announcement. This range takes into account the wide range of factors that are considered in making compensation decisions including but not limited to experience, skills, knowledge, abilities, education, licensure and certifications, analysis of internal equity, and other business and organizational needs. It is not typical for an individual to be offered a salary at or near the top of the range for a position. Salary offers are determined based on final candidate qualifications and experience.

The budgeted salary or hourly range that the University reasonably expects to pay for this position is $120,000 to $165,000 yearly ($10,000 to $13,750 monthly). This is a 100% FTE career position eligible for full benefits. This position is FLSA Exempt and paid monthly.

Conviction History Background

This is a designated position requiring fingerprinting and a background check due to the nature of the job responsibilities. Berkeley does hire people with conviction histories and reviews information

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received in the context of the job responsibilities. The University reserves the right to make employment contingent upon successful completion of the background check.

Misconduct Disclosure

As a condition of employment, the final candidate who accepts a conditional offer of employment will be required to disclose if they have been subject to any final administrative or judicial decisions within the last seven years determining that they committed any misconduct; received notice of any allegations or are currently the subject of any administrative or disciplinary proceedings involving misconduct; have left a position after receiving notice of allegations or while under investigation in an administrative or disciplinary proceeding involving misconduct; or have filed an appeal of a finding of misconduct with a previous employer.

"Misconduct" means any violation of the policies or laws governing conduct at the applicant's previous place of employment, including, but not limited to, violations of policies or laws prohibiting sexual harassment, sexual assault, or other forms of harassment, discrimination, dishonesty, or unethical conduct, as defined by the employer. For reference, below are UC's policies addressing some forms of misconduct:

UC Sexual Violence and Sexual Harassment Policy
UC Anti-Discrimination Policy
Abusive Conduct in the Workplace

Equal Employment Opportunity

The University of California is an Equal Opportunity Employer. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability, age, protected veteran status, or other protected status under state or federal law.

To apply, visit
https://careerspub.universityofcalifornia.edu/psc/ucb/EMPLOYEE/HRMS/c/HRS_HRAM_FL.HRS_CG_S

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Contact Information

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

Contact

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