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### Senior Quantum Simulation Engineer

1 month ago

Santa Barbara, California, United States

Up to 50% work from home

Microsoft's Quantum research group is exploring ways to build a full-stack quantum computer and has become the world's center of expertise on topological quantum computing. The research effort includes theoretical and experimental teams around the world, who h...

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### Senior Quantum Simulation Engineer

Santa Barbara, California, United States

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Date posted **Mar 01, 2024**

Job number **1695304**

Work site **Up to 50% work from home**

Travel **0-25 %**

Role type **Individual Contributor**

Profession **Quantum Computing**

Discipline **Quantum Engineering**

Employment type **Full-Time**

Feedback

## Overview

Microsoft's Quantum research group is exploring ways to build a full-stack quantum computer and has become the world's center of expertise on topological quantum computing. The research effort includes theoretical and experimental teams around the world, who have been designing and optimizing all aspects of the quantum computer, from topological qubit designs to cryogenic control and readout circuitry, to runtime software and quantum language compilers. Microsoft Quantum will change the world of computing and help solve some of humankind's currently unsolvable problems. For more information about our team, visit <https://www.microsoft.com/en-us/quantum>.

Are you enthusiastic about mesoscopic device physics and quantum computing? Do you want to be part of the next revolution in computing? Microsoft is looking for you! We are looking for a Senior Quantum Simulation Engineer to join our team to build a quantum computer based on topologically protected qubits.

Microsoft's mission is to empower every person and every organization on the planet to achieve more. As employees we come together with a growth mindset, innovate to empower others, and collaborate to realize our shared goals. Each day we build on our values of respect, integrity, and accountability to create a culture of inclusion where everyone can thrive at work and beyond.

In alignment with our Microsoft values, we are committed to cultivating an inclusive work environment for all employees to positively impact our culture every day.

## Qualifications

### Required Qualifications:

- Bachelor's Degree in Physics, Engineering, or related field AND 6+ years experience in industry or in a research and development environment
  - OR Master's Degree in Physics, Engineering, or related field AND 4+ years experience in industry or in a research and development environment
  - OR Doctorate in Physics, Engineering, or related field AND 1+ year(s) experience in industry or in a research and development environment,

- could include completion of a post doctoral research position
- OR equivalent experience.
- Experience with high-performance or high-throughput computing.

### **Other Requirements**

Ability to meet Microsoft, customer and/or government security screening requirements are required for this role. These requirements include, but are not limited to the following specialized security screenings:

- Microsoft Cloud Background Check: This position will be required to pass the Microsoft Cloud Background Check upon hire/transfer and every two years thereafter.
- Citizenship & Citizenship Verification: This role will require access to information that is controlled for export under export control regulations, potentially under the U.S. International Traffic in Arms Regulations or Export Administration Regulations, the EU Dual Use Regulation, and/or other export control regulations. As a condition of employment, the successful candidate will be required to provide proof of citizenship, U.S. permanent residency, or other protected status (e.g., under 8 U.S.C. § 1324b(a)(3)) for assessment of eligibility to access the export-controlled information. To meet this legal requirement, and as a condition of employment, the successful candidate's citizenship will be verified with a valid passport. Lawful permanent residents, refugees, and asylees may verify status using other documents, where applicable.
- Travel: Able and willing to travel internationally up to 25%

### **Preferred Qualifications:**

- Doctorate in Physics, Engineering, related field OR equivalent experience
- Proficient communication skills
- Ability to succeed in fast-paced, collaborative team
- Background in semiconductor physics and/or topological materials
- Background in materials simulations with *ab initio* and empirical methods
- Experience with quantum transport, disorder and topological physics

Quantum Engineering IC4 - The typical base pay range for this role across the U.S. is USD \$112,000 - \$218,400 per year. There is a different range applicable to specific work

Locations, within the San Francisco Bay area and New York City metropolitan area, and the base pay range for this role in those locations is USD \$145,800 - \$238,600 per year.

Certain roles may be eligible for benefits and other compensation. Find additional benefits and pay information here: <https://careers.microsoft.com/us/en/us-corporate-pay>.

#Quantum

## Responsibilities

You will be part of a team of top theoretical and experimental physicists seeking to develop and optimize topological qubits. To be successful, you'll work with a team of engineers across the globe.

- Your main responsibility will be performing simulations of quantum materials that guide materials growth and help in understanding characterization measurements with the goal of optimizing material combinations for topological qubits.
- You will apply *ab initio* and empirical methods to simulate the energetics, band structure and expected electric properties of materials.
- You will work within the team to develop and expand simulation capabilities.

## Other

- Embody our [Culture](#) and [Values](#)

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Benefits/perks listed below may vary depending on the nature of your employment with Microsoft and the country where you work.

 Industry leading healthcare

 Educational resources

 Discounts on products and services

 Savings and investments

 Maternity and paternity leave

 Generous time away

 Giving programs

## Opportunities to network and connect

Microsoft is an equal opportunity employer. All qualified applicants will receive consideration for employment without regard to age, ancestry, citizenship, color, family or medical care leave, gender identity or expression, genetic information, immigration status, marital status, medical condition, national origin, physical or mental disability, political affiliation, protected veteran or military status, race, ethnicity, religion, sex (including pregnancy), sexual orientation, or any other characteristic protected by applicable local laws, regulations and ordinances. If you need assistance and/or a reasonable accommodation due to a disability during the application process, read more about [requesting accommodations](#).


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