

Women+ in Quantum seminar series presents:

Dr. Kayleigh Cassella (Atom Computing)



Neutral Atom Platforms for Scalable Quantum Systems

Wednesday, October 29th in PAB 4-708

Trapped, neutral atom systems are emerging as a highly versatile and rapidly advancing platform in quantum science. These systems offer exceptional controllability and long coherence times, making them ideal for both quantum computing and sensing applications. In quantum computing, neutral atom architectures facilitate scalable qubit arrays with programmable interactions, mediated by Rydberg excitations. This offers a promising pathway towards utility-scale, fault-tolerant computers. For quantum sensing, neutral atom ensembles act as exquisitely sensitive probes for external fields, time, and acceleration, benefiting from their compact size and inherent controllability. This seminar will outline shared technological foundations underlying quantum computing and sensing applications, and discuss the advantages of the platform—such as scalability, coherence, and reconfigurability—alongside its key challenges, including technical noise, atom loss, and gate fidelity. Together, these perspectives highlight how neutral atom systems are shaping the landscape of next-generation quantum technologies.

Schedule:

3:30 - 4 pm: Coffee & cookies - PAB 4-708

4 - 5 pm: Seminar - PAB 4-708

5 - 6:30 pm: Networking and dinner/drinks with Dr. Cassella



Dr. Kayleigh Cassella is a Senior Technical Program Manager at Atom Computing, where she previously contributed as a member of the Quantum Engineering team that built the company's first prototype computer in Berkeley. In November, she will join Vector Atomic as a Staff Scientist, helping to lead efforts in developing quantum inertial sensors.

Kayleigh earned her Ph.D. in Physics from UC Berkeley in 2018, where she developed a lithium-atom interferometer. She continued at Berkeley as a postdoctoral researcher, studying laser cooling of transition metal atoms and designing a system for titanium before joining Atom in 2020. Her research interests center on engineering neutral atom platforms for quantum technologies, spanning applications in both computing and sensing.

Passionate about mentorship and inclusion in science, Kayleigh has led initiatives supporting early-career researchers and women in STEM like the establishment of a dedicated lactation room in the Berkeley Physics Department. Outside the lab, she enjoys spending time with her kids, watching Netflix, and hiking with her (supersized) dog.

[ucla.enterprise.slack.com](https://ucla.enterprise.slack.com/channel/#women-in-quantum)
channel: #women-in-quantum

Email: womeninquantum.ucla@gmail.com
Website: womeninquantum.physics.ucla.edu