

# CESQ Colloquium

**Tuesday October 14 @ 3 PM**

**Seminar Room, Centre Européen de Sciences Quantiques,  
Campus de Cronenbourg**

## **Mark Saffman**

**University of Wisconsin-Madison and Infleqtion**

### *Quantum computing with atomic qubit arrays*

Large arrays of neutral atoms are a leading modality in the race towards useful quantum computation. Systems with more than 1000 qubits in 2D arrays and gate fidelities approaching three nines are being developed by many academic and industrial groups. I will present recent progress at University of Wisconsin-Madison and Infleqtion with physical and logical qubit encodings. Interesting challenges remain in scaling the size and performance to the levels needed for quantum utility. Ultimately a modular approach to quantum computation will enable scaling to millions of qubits, with inter-module connections enabled by photonic links. Preliminary results on entangling atoms with photons for scaling a modular architecture will be presented.

**Contact:** Guido Pupillo (pupillo@unistra.fr), Jérôme Dubail (j.dubail@unistra.fr)

