

## ASSEMBLING QUANTUM MATTER ONE ATOM AT A TIME

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Over the last decade, physicists have learned to assemble „atom by atom“ a synthetic quantum matter. This seminar will present one example based on laser-cooled ensembles of individual atoms trapped in microscopic optical tweezer arrays. By exciting them to Rydberg states, we make them interact, even at micrometer distances. In this way, we study the many-body properties of more than a hundred interacting spins, in a regime where simulations by usual numerical methods are already very challenging. Some aspects of this research led to the creation of a company, Pasqal.

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