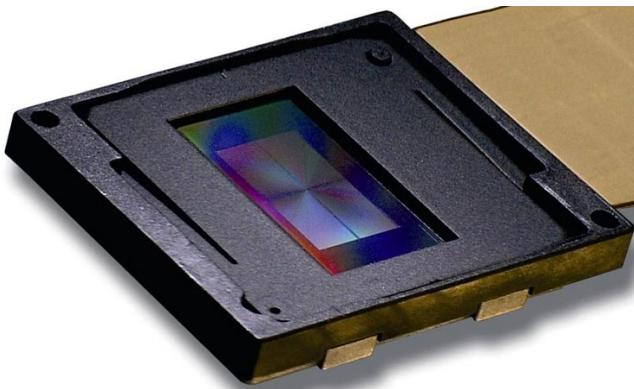
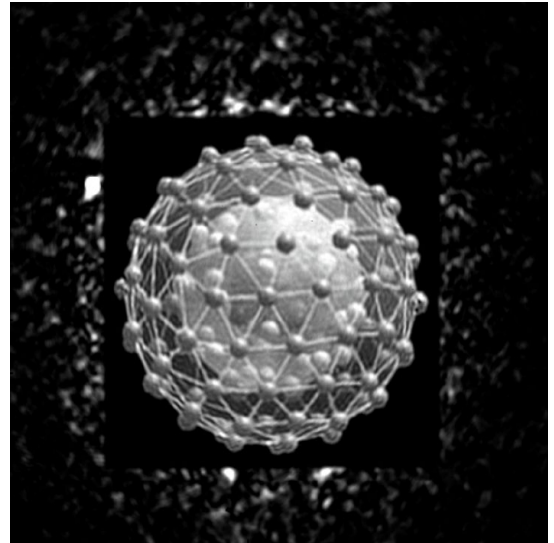


The research group *Coherence and Quantum Technology*, Department of Applied Physics, Eindhoven University of Technology, announces an

## Experimental PhD position: Rydberg atoms in Lattices.

**Project:** The ultimate goal is to develop a platform for the simulation of classical and quantum Hamiltonians [1] using highly-excited, so-called Rydberg atoms. The challenge is to create systems of interacting Rydberg atoms with controllable order from a cloud of laser-cooled and trapped rubidium atoms. Diffractive light patterns generated with spatial light modulators will be used for optical excitation to Rydberg states. A unique feature is detection of spatial structures through ion-optical imaging.



**Setting:** An experimental setup with a number of the required features is already available for you to build on [2]. You will also team up with a second, theoretical PhD student and a post-doctoral researcher plus MSc students. Faculty members dr. Edgar Vredenburg, dr. Servaas Kokkelmans and prof.dr. Jom Luiten together supervise the project. We supply ample technical support, and solid expertise in the field [3].

The *Rydberg Lattices* project is part of a collaborative research program [From Rydberg atom to quantum bit](#) with the Quantum Gases and Quantum Information group at the University of Amsterdam, and sponsored by FOM, the prime funding agency for fundamental research in the Netherlands. For further information about the position please contact Edgar Vredenburg ([e.j.d.vredenburg@tue.nl](mailto:e.j.d.vredenburg@tue.nl)) or Servaas Kokkelmans ([s.kokkelmans@tue.nl](mailto:s.kokkelmans@tue.nl)).

**Employment:** The PhD position is for four years, during which you will be employed by the FOM Foundation and participate in all the benefits that FOM offers. For details visit <http://www.fom.nl>.

**How to apply:** Send your application by e-mail to [secretariaat.cqt@tue.nl](mailto:secretariaat.cqt@tue.nl) and include a letter explaining your motivation and research interests, a curriculum vitae, and names and e-mail addresses of two references. We require an MSc degree in experimental physics, preferably experience in atomic and optical physics, and fluency in English.

### Further reading:

[1] M. Greiner, *et al*, Nature **415**, 39 (2002)

[2] W.J. Engelen *et al*, Nature Communications **4**, 1693 (2013)

[3] for a recent PhD thesis, see R.M.W. van Bijnen, *Quantum Engineering with Ultracold Atoms*, (2013), available at <http://alexandria.tue.nl/extra2/754785.pdf>