Summer 2012

PhD- & Postdoc positions

Tilman Pfau
5. Physikalisches Institut
Universität Stuttgart

on

Hot and ultracold Rydberg gases,
Dipolar quantum gases

Hot Rydberg gases
We produce micron-sized vapor cells filled with Rubidium or Cesium for experiments with highly excited Rydberg atoms for quantum optical applications.

Strongly interacting Rydberg gases
We use an ultracold gas of Rubidium atoms to study highly resolved the interaction mechanisms between Rydberg atoms with a focus on strongly correlated many body systems.

Ultra-longrange Rydberg molecules
At sufficient large densities in an ultracold cloud of Rydberg atoms it is possible to find two atoms within the physical size of one Rydberg atom. These two atoms can now be fused together to form huge dimers with very peculiar properties.

Dipolar quantum gases
By using ultracold magnetic atoms we can produce quantum degenerate gases dominated by an anisotropic and longrange dipole-dipole interaction. With this we aim on the realization of new quantum states of matter.

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