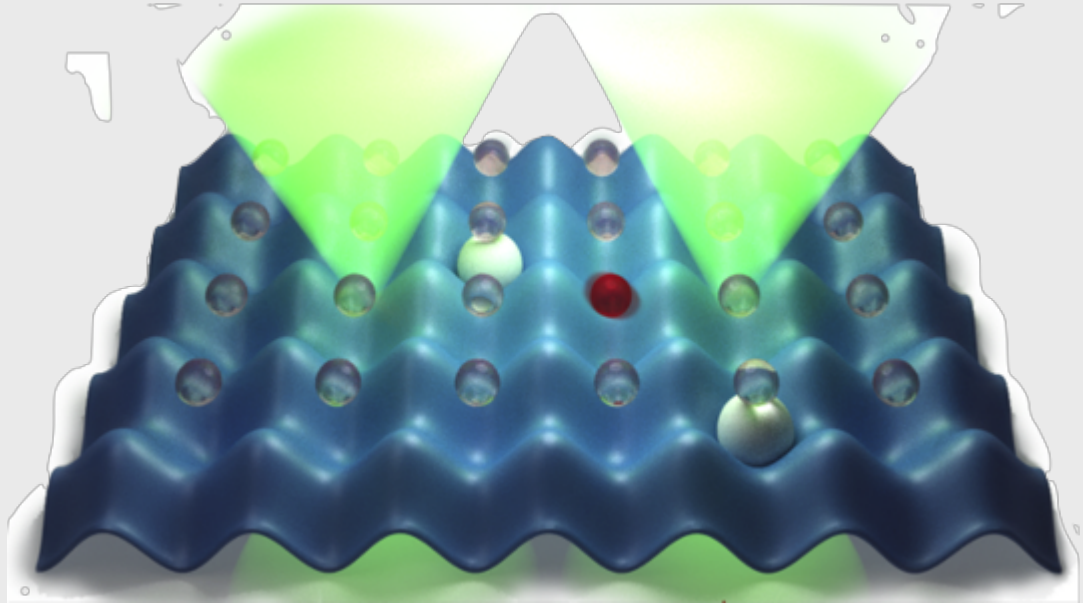


Analog Quantum Chemistry Simulation with Ultra-cold Atoms



Title: Analog Quantum Chemistry Simulation with Ultra-cold Atoms.

When: Friday, November 30, (2018), 12:00.

Place: Department of Theoretical Condensed Matter Physics, Faculty of Sciences, Module 5, Seminar Room (5th Floor).

Speaker: Alejandro Gonzalez Tudela, Institute of Fundamental Physics, CSIC, Madrid, Spain.

Solving quantum chemistry problems with a quantum computer is one of the most exciting applications of future quantum technologies. Current efforts are focused on finding an efficient algorithm that allows the efficient simulation of chemistry problems in a digital way. In this talk, I will present a complementary approach to the problem which consists in simulating quantum chemistry problems using ultra-cold atoms. I will first show how to simulate the different parts of the Hamiltonian, and then benchmark it with simple molecules.

References

Unconventional quantum optics in topological waveguide QED, Miguel Bello, Gloria Platero, Juan Ignacio Cirac, Alejandro González-Tudela, arXiv:1811.04390, (2018).