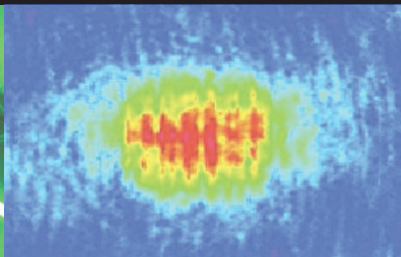
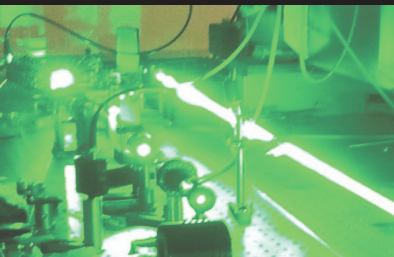


# Joint UoC/FORTH AMO Seminar



02 June 2021, 16:30, Online Seminar



## Quantum vacuum interactions: past achievements and future challenges

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Interactions of the Casimir type are a quantum phenomenon that is due to the modification of electromagnetic quantum fluctuations near macroscopic dielectric boundaries. In this seminar, I will give a quick overview of Casimir-Polder experiments, measuring the interaction between quantum polarizable particles (atoms or molecules) and dielectric surfaces. My emphasis will be on spectroscopic experiments inside atom vapor cells that have evolved in the University Sorbonne Paris Nord over the past 30 years. These experiments were the first to demonstrate the influence of surface polariton resonances on Casimir-Polder interactions that represents a possible path towards tuning atom-surface interactions. I will then describe the current efforts of my group to measure the Casimir-Polder interactions of highly excited Rydberg atoms that are now attractive candidates for quantum technology applications. Finally, I will briefly explain a new generation of spectroscopic experiments probing molecular gases next to dielectric surfaces thus paving the way towards molecule-surface interaction spectroscopy.

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