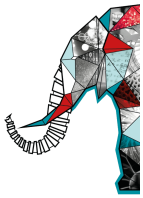
25e Congrès Général de la Société Française de Physique



Contribution ID: **248** Type: **Orale**

Ultrathin Optical Fibre Applications from Atomic Physics through Quantum Optics

Friday, 12 July 2019 08:30 (30 minutes)

Ultrathin optical fibres, with diameters on the order of the propagating light wavelength, have already proven their versatility across a variety of different areas, such as sensing, particle manipulation, cold atom physics, and as optical couplers. The intense evanescent field at the fibre waist is one of the main advantages offered by these systems as it allows us to achieve ultrahigh light intensities that may otherwise not be attainable in a standard laboratory. In this talk, I will present work conducted at OIST related to the fields of atomic physics and quantum optics. For example, we embed ultrathin fibres into a laser- cooled sample of rubidium atoms for studies related to Rydberg atom formation near a dielectric surface and to study degenerate and nondegenerate two-photon processes. In another example, I'll discuss work on structured ultrathin fibres that combine a Bragg grating with a cavity for enhanced photon coupling from a quantum emitter. Overall, the versatility of these fibres for many different experimental platforms – particularly if one goes beyond the basic, single mode fibre design – will be promoted.

Choix de session parallèle

6.3 Nanofibre optique: une nouvelle plateforme pour l'optique et l'information quantique

Primary author: NIC CHORMAIC, Síle (OIST Graduate University, Okinawa, Japan)

Presenter: NIC CHORMAIC, Síle (OIST Graduate University, Okinawa, Japan)

Session Classification: Séance Parallèle