AVVISO DI SEMINARIO

Il giorno mercoledì 25 gennaio 2017 alle ore 11,00
presso l'Area della Ricerca CNR di Pisa, Aula 33, piano Terra, Edificio “A”

la Dr.ssa Nicole FABBRI

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terrà un seminario sul tema:

Diamond color centers for quantum technologies

Abstract.

In the last decade, color centers in diamond have emerged as a promising platform for quantum information processing and communications, and quantum sensing.

In this talk, I will focus on the controlled manipulation of the electronic-nuclear two-spin system based on a single nitrogen-vacancy (NV) color center, which allows to take advantage of the 14N nuclear spin as ancillary qubit [1] for improving the performance of the NV electronic spin in sensing and computational tasks. A critical prerequisite for the use of this system in quantum technologies is the precise knowledge of its Hamiltonian, which is challenging to study in the electronic excited state, due to the short lifetime. I will present a strategy to measure the excited-state transverse hyperfine coupling of the NV-14N two-spin system, based on the measurement of the time-dependence of the nuclear polarization dynamics [2].

I will also report our recent study on the formation and the optical properties of near-infrared color centers, promising for novel diamond-based light-emitting devices operating at high temperatures [3].