



Contribution ID : 17

Type : **Oral**

Coherent Manipulation and Readout of Molecular Spins through Planar Superconducting Microwave Resonators

martedì 12 ottobre 2021 15:20 (25)

Molecular spins hold potential for quantum information when integrated into planar superconducting microwave resonators [AdvPhysX3,1435305(2018)]. Along this line, we present our recent results on developing protocols (i.e. microwave sequences) for initializing, manipulating and reading out molecular spin ensembles. We first apply a storage/retrieval protocol on an Oxovanadyl (VO(TPP)) sample, showing that it's possible to use it as a memory for individually-controllable pulses [AdvPhysX3,1435305(2018)]. We then demonstrate an advanced transmission spectroscopy on a crystal of Diphenyl-Nitroxide (DPNO) in the dispersive limit of the coupling with the resonator, where no resonant exchange of photons occurs [AdvPhysX3,1435305(2018)]. Finally, we shall present our preliminary results on applying a Machine Learning approach in recognising and treating spin echo signals.

Primary author(s) : Dr. BONIZZONI, Claudio (Istituto Nanoscienze CNR NANO S3 di Modena)

Co-author(s) : Dr. GHIRRI, Alberto (Istituto Nanoscienze CNR NANO S3 di Modena); Mr. TINCANI, Mirco (Università di Modena e Reggio Emilia); Prof. AFFRONTE, Marco (Dipartimento di Scienze Fisiche, Informatiche e Matematiche - Università di Modena e Reggio Emilia)

Presenter(s) : Dr. BONIZZONI, Claudio (Istituto Nanoscienze CNR NANO S3 di Modena)

Session Classification : Session 5