

## Seminario



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terrà un seminario dal titolo

## Dual dressing of a qubit

Abstract:

We explore how a strong oscillating magnetic field alters, i.e., dresses-the Larmor frequency of a precessing spin, originally set by a weaker static field. Following a brief overview of the mathematical framework used to analyze the dynamical Larmor equations. I will first revisit the classic single-field dressing configuration, extensively studied since the late 1960s. The main focus, however, is on a recently proposed tuning-dressing mechanism which emerges when a second oscillating magnetic field is introduced, for instance perpendicular to both the static and dressing fields. This additional time-dependent field allows precise tuning of the qubit's response. The resulting long-time dynamics are effectively governed by an anisotropic synthetic magnetic field, offering a new degree of control for system-level engineering. The bichromatic drive, through low-order harmonic mixing, generates a static-like effective field that reshapes the system's evolution. This mechanism opens new possibilities for experimental applications involving Larmor precession and spin-based quantum control.

2/7/2025, ore 16:00, Aula Maxwell (plesso fisica)