



FLEET

ARC CENTRE OF EXCELLENCE IN
FUTURE LOW-ENERGY
ELECTRONICS TECHNOLOGIES

Thursday 22 November

14:00-15:00

FLEET SEMINAR

Electronic and nuclear spins in
driven quantum dots:

Paradigm for non-equilibrium
states with induced coherence

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Abstract

The spin of localized electrons or holes in quantum dots is an interesting candidate for a quantum bit. Hence one aims at keeping its coherence as long as possible. First, we discuss the main mechanism for the decoherence of the dynamics of the electronic spin. Second, we discuss the phenomenon of mode-locking observed in ensembles of quantum dots which leads to a coherent response of a large fraction of quantum dots. This mode-locking is achieved by long trains of repeated laser pulses inducing a state far from equilibrium. In an outlook, we discuss if this mechanism is able to generate quantum coherence.

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VENUE: G59, School of Physics
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