

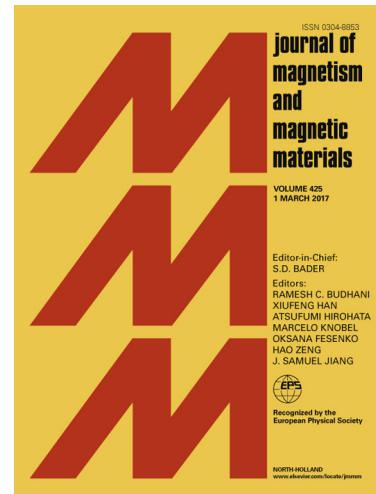
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The effect of external magnetic field changing on the correlated quantum dot dynamics

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# The effect of external magnetic field changing on the correlated quantum dot dynamics

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## Abstract

The non-stationary response of local magnetic moment to abrupt switching "on" and "off" of external magnetic field was studied for a single-level quantum dot (QD) coupled to a reservoir. We found that transient processes look different for the shallow and deep localized energy level. It was demonstrated that for deep energy level the relaxation rates of the local magnetic moment strongly differ in the case of magnetic field switching "on" or "off". Obtained results can be applied in the area of dynamic memory devices stabilization in the presence of magnetic field.

*Keywords:* Quantum dots, Non-stationary effects, Magnetic field, Coulomb correlations

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## 1. Introduction

Preparation, diagnostics and controllable operation of charge and spin states in single and coupled quantum dots (QDs) are among the most vital problems in nano-electronics nowadays [1, 2, 3]. Integration of QDs in little quantum circuits requires careful analysis of non-stationary effects,

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