1. Record Nr. UNINA9910346777103321

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Titolo	Investigation of Magnetic Adatoms with Scanning Tunneling Techniques
Pubbl/distr/stampa	KIT Scientific Publishing, 2015
ISBN	1000049666
Descrizione fisica	1 electronic resource (II, 99 p. p.)
Collana	Experimental Condensed Matter Physics / Karlsruher Institut für Technologie, Physikalisches Institut
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Sommario/riassunto	In this work, magnetic atoms on surfaces are studied with low-temperature scanning tunneling microscopy. Motivated by the idea to use single atoms as magnetic bits, the factors that allow or prevent long-term stability of their magnetic moments are investigated. Lifetimes of up to several minutes can be achieved for the magnetic moments of holmium atoms on a Pt(111) surface, resulting from the combined symmetries of the system. Corresponding theoretical calculations are presented and evaluated.