1. Record Nr. UNINA9910300375203321

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Titolo	Macroscopic Matter Wave Interferometry / / by Stefan Nimmrichter
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2014
ISBN	3-319-07097-5
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (286 p.)
Collana	Springer Theses, Recognizing Outstanding Ph.D. Research, , 2190-5053
Disciplina	535.470287
Soggetti	Quantum physics Atoms Physics Physical measurements Measurement Nanoscale science Nanoscience Nanostructures Quantum Physics Atomic, Molecular, Optical and Plasma Physics Measurement Science and Instrumentation Nanoscale Science and Technology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"Doctoral Thesis accepted by the University of Vienna, Austria"--T.p.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction -- Interaction of Polarizable Particles with Light -- Near-Field Interference Techniques with Heavy Molecules and Nanoclusters -- Classicalization and the Macroscopicity of Quantum Superposition States -- Conclusion and Outlook -- Appendix A Light-Matter Interaction -- Appendix B Matter-Wave Interferometry -- Appendix C Classicalization and Macroscopicity.
Sommario/riassunto	Matterwave interferometry is a promising and successful way to explore truly macroscopic quantum phenomena and probe the validity of quantum theory at the borderline to the classic world. Indeed, we may soon witness quantum superpositions with nano to micrometer-

sized objects. Yet, venturing deeper into the macroscopic domain is not only an experimental but also a theoretical endeavour: new interferometers must be conceived, sources of noise and decoherence identified, size effects understood, and possible modifications of the theory taken into account. This thesis provides the theoretical background to recent advances in molecule and nanoparticle interferometry. In addition, it contains a physical and objective method to assess the degree of macroscopicity of such experiments, ranking them among other macroscopic quantum superposition phenomena.