

1. Record Nr.	UNINA9910300417203321
Autore	Simpson William M.R
Titolo	Surprises in Theoretical Casimir Physics : Quantum Forces in Inhomogeneous Media // by William M.R. Simpson
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2015
ISBN	3-319-09315-0
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (192 p.)
Collana	Springer Theses, Recognizing Outstanding Ph.D. Research, , 2190-5053
Disciplina	537.67
Soggetti	Quantum field theory String theory Optics Electrodynamics Elementary particles (Physics) Quantum Field Theories, String Theory Classical Electrodynamics Elementary Particles, Quantum Field Theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"Doctoral thesis accepted by the University of St. Andrews, Scotland."
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Part I Foundations of Casimir Theory -- Casimir's Calculation -- Macroscopic Quantum Electrodynamics -- The Quantum Nature of the Casimir Force -- Part II Surprises in Casimir Theory -- The Cut-off-dependence of the Casimir Force -- The Divergence of the Casimir Stress -- Part III Conundrums in Casimir Theory -- The Casimir Force in a 'Compressive' Medium -- The Casimir Force in Maxwell's Fish-Eye -- Outlook -- Appendices. .
Sommario/riassunto	Despite more than half a century of theoretical work, the Casimir effect is still not as fully understood as some suppose. In this treatise, the author uncovers new puzzles and paradoxes concerning this mysterious phenomenon. In particular, he clearly demonstrates that the most sophisticated theories fail when confronted with dielectrics in which the refractive index is not uniform but gradually changes.

