

1. Record Nr.	UNINA9910458472803321
Titolo	Casimir force, Casimir operators, and the Riemann hypothesis [[electronic resource]] : mathematics for innovation in industry and science // editors, Gerrit van Dijk, Masato Wakayama
Pubbl/distr/stampa	Berlin ; ; New York, : De Gruyter, c2010
ISBN	1-282-91195-3 9786612911958 3-11-022613-8
Descrizione fisica	1 online resource (294 p.)
Collana	De Gruyter Proceedings in Mathematics
Altri autori (Persone)	DijkGerrit van <1939-> WakayamaMasato
Disciplina	512.7/3
Soggetti	Casimir effect Research - Mathematical models Research, Industrial - Mathematical models Technological innovations - Mathematical models Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Frontmatter -- Contents -- Raising the profile of mathematics -- Casimir and lessons for innovation -- Mathematics in the industrial environment: Dutch perspective -- The Riemann Hypothesis - a short history -- Pairing-based cryptography and its security analysis -- Zeta functions and Casimir energies on infinite symmetric groups II -- An algorithm for generating rational points and hash functions into elliptic curves -- A Casimir force in dimer systems -- Ruelle zeta function and prime geodesic theorem for hyperbolic manifolds with cusps -- The dual pair $(\mathrm{Op}; \mathrm{q}; \mathrm{OeSp}_2; 2)$ and Maxwell's equations -- On extensions of the tensor algebra -- From monoids to hyperstructures: in search of an absolute arithmetic -- Arithmetics derived from the non-commutative harmonic oscillator -- Hyperbolic structures and root systems -- Multiplicity one theorems and the Casimir operator -- Approaching quantization in the light of invariant differential operators -- Invitation to nonadditive arithmetical geometry -- Absolute zeta functions,

absolute Riemann hypothesis and absolute Casimir energies -- The Hilbert-Polya strategy and height pairings -- Backmatter

Sommario/riassunto

This volume contains the proceedings of the conference "Casimir Force, Casimir Operators and the Riemann Hypothesis - Mathematics for Innovation in Industry and Science" held in November 2009 in Fukuoka (Japan). The motive for the conference was the celebration of the 100th birthday of Casimir and the 150th birthday of the Riemann hypothesis. The conference focused on the following topics: Casimir operators in harmonic analysis and representation theory Number theory, in particular zeta functions and cryptography Casimir force in physics and its relation with nano-science Mathematical biology Importance of mathematics for innovation in industry The latter topic was inspired both by the call for innovation in industry worldwide and by the fact that Casimir, who was the director of Philips research for a long time in his career, had an outspoken opinion on the importance of fundamental science for industry. These proceedings are of interest both to research mathematicians and to those interested in the role science, and in particular mathematics, can play in innovation in industry.
