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Samuel Halim, CEO and founder of Avantama AG, talks to AZoNano about the advances in quantum dot technology for the display industry.

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Summer movie season is upon us — though the release schedule has never been more confusing, with some blockbusters heading directly to streaming, and various independent films insisting on the ...

~~New Movies to Watch This Week: 'Black Widow,' 'Fear Street Part 2: 1978,' 'The Loneliest Whale'~~
Exclusion of the Magnus Effect as a Mechanism for Shotgun Pellet Dispersion ... International Journal of Modern Physics: Advances in Theory and Application 2 (2017) 35; arXiv:1407.7772 [gr-qc], by J.

~~Dr. Gerald B. Cleaver~~

Here's a rundown of the films opening this week that Variety has covered, along with information on where you can watch them. Find more movies and TV shows to stream here. New Releases for the ...

The subject of this book is the Casimir effect, a manifestation of zero-point oscillations of the quantum vacuum resulting in forces acting between closely spaced bodies. For the benefit of the reader, the book

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assembles field-theoretical foundations of this phenomenon, applications of the general theory to real materials, and a comprehensive description of all recently performed measurements of the Casimir force with a comparison between experiment and theory. There is an urgent need for a book of this type, given the increase of interest in forces originating from the quantum vacuum. Numerous new results have been obtained in the last few years which are not reflected in previous books on the subject, but which are very promising for fundamental science and nanotechnology. The book is a unique source of information presenting a critical assessment of all the main results and approaches from hundreds of journal papers. It also outlines new ideas which have not yet been universally accepted but which are finding increasing support from experiment.

This title is a comprehensive sourcebook, distilled from hundreds of recently published papers, about the Casimir effect: the small forces originating from the quantum vacuum and acting between closely spaced bodies. It brings together developments in experiment and theory, fundamental and applied aspects of the Casimir force.--Résumé de l'éditeur.

The Casimir effect is a quantum force of attraction between two parallel uncharged conducting plates. More generally, it refers to the interaction between material bodies due to quantum fluctuations in whatever fields are relevant.

The Casimir effect arises from the zero-point energy of a quantized field and can exert a measurable force on a conducting plate. It is important in some modern developments in cosmology and elementary particle physics.

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Casimir effects serve as primary examples of directly observable manifestations of the nontrivial properties of quantum fields, and as such are attracting increasing interest from quantum field theorists, particle physicists, and cosmologists. Furthermore, though very weak except at short distances, Casimir forces are universal in the sense that all material objects are subject to them. They are thus also an increasingly important part of the physics of atom-surface interactions, while in nanotechnology they are being investigated not only as contributors to ‘stiction’ but also as potential mechanisms for actuating micro-electromechanical devices. While the field of Casimir physics is expanding rapidly, it has reached a level of maturity in some important respects: on the experimental side, where most sources of imprecision in force measurements have been identified as well as on the theoretical side, where, for example, semi-analytical and numerical methods for the computation of Casimir forces between bodies of arbitrary shape have been successfully developed. This book is, then, a timely and comprehensive guide to the essence of Casimir (and Casimir-Polder) physics that will have lasting value, serving the dual purpose of an introduction and reference to the field. While this volume is not intended to be a unified textbook, but rather a collection of largely independent chapters written by prominent experts in the field, the detailed and carefully written articles adopt a style that should appeal to non-specialist researchers in the field as well as to a broader audience of graduate students.

This volume contains papers based on talks delivered at the Fourth Workshop on Quantum Field Theory Under the Influence of External Conditions. This series of workshops, held at the Institute for Theoretical Physics of the University of Leipzig, was launched in 1989. The present meeting took place 50 years after Hendrik B Casimir discovered the effect named after him. This effect was found by

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Casimir in investigating the retarded long range van der Waals forces in colloids and re-expressing them as a change in the vacuum energy of the electromagnetic field. The story of why this work was done was told by Casimir himself at the workshop. A historical account of the development of vacuum energy in quantum theory starting from Planck's half quanta was given by H Rechenberg. Another interesting topic was about a possible explanation of sonoluminescence as a dynamical Casimir effect. Kim Milton reported on the work done by Julian Schwinger on this topic during the last years of the great physicist's life, as well as on his own research. M Bordag (Leipzig) provided a general analysis of the ultraviolet divergences of the vacuum energy of a dielectric sphere.

This book presents a selection of cutting-edge methods that allow readers to obtain novel models for nonlinear solid mechanics. Today, engineers need more accurate techniques for modeling solid body mechanics, chiefly due to innovative methods like additive manufacturing—for example, 3D printing—but also due to miniaturization. This book focuses on the formulation of continuum and discrete models for complex materials and systems, and especially the design of metamaterials. It gathers outstanding papers from the international conference IcONSOM 2019

The book provides a review of some of the most important and 'hot' topics in condensed matter physics today. It includes contributions by internationally leading experts such as V M Agranovich, B L Altshuler, E Burstein, V L Ginzburg, K Von Klitzing, P B Littlewood, M Pepper etc, and can serve as a guide-book to modern condensed matter physics.

The well-known Casimir effect has a direct analogue in systems near critical or multicritical points.

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Critical fluctuations in systems confined to finite geometries lead to attractive or repulsive forces between system boundaries. These forces influence the formation of wetting layers of liquid ^4He or binary liquid mixtures near critical points in these fluids. With the aid of recently developed versions of the atomic force microscope, these forces appear to be directly measurable. The book contains an introduction to the physics of critical phenomena and reviews the most recent developments in the theory of finite-size scaling. A detailed discussion of the Casimir effect and related questions follows. The analysis of quantitative effects on the specific heat of critical films, the formation of wetting layers, and force measurements finish the presentation. This is perhaps the first book on the critical Casimir effect.

Advances in Atomic, Molecular, and Optical Physics continues the tradition of the Advances series. It contains contributions from experts in the field of atomic, molecular, and optical (AMO) physics. The articles contain some review material, but are intended to provide a comprehensive picture of recent important developments in AMO physics. Both theoretical and experimental articles are included in the volume. International experts Comprehensive articles New developments

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