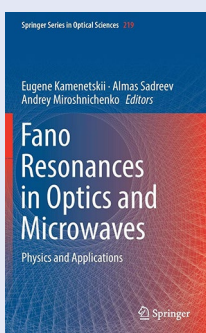


Parity-Time Symmetry and its Applications

Edited by Demetrios Christodoulides and Jianke Yang

SPRINGER: 2018. 579PP. £129.99.

Non-Hermitian physics and parity-time (PT) symmetry have attracted considerable attention in recent years. This title reviews the theoretical and experimental advances in linear and nonlinear PT-symmetric systems in various physical disciplines and discusses the emerging applications of PT symmetry. Some of the topics that are covered in the 20 chapters include: on-chip PT symmetry, scattering problems and theory in PT symmetry, non-Hermitian effects due to asymmetric backscattering of light in whispering-gallery microcavities, effects of exceptional points in PT-symmetric waveguides, PT-symmetric plasmonics, PT symmetry and non-Hermitian wave transport in microwaves and radio-frequency circuits, and integrable non-local PT-symmetric and reverse space-time nonlinear Schrödinger equations.

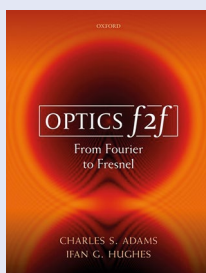


Fano Resonances in Optics and Microwaves

Edited by Eugene Kamenetskii, Almas Sadreev and Andrey Miroshnichenko

SPRINGER: 582PP. 2018. €155.99.

Owing to their unique physical properties and unusual combination of classical and quantum structures, Fano resonances have potential for application in a wide range of fields, from telecommunications to ultrasensitive biosensing and medical instrumentation to data storage. This volume provides an update on the development of Fano-based techniques and describes the characteristic properties of various wave processes by studying interference phenomena. The 23 chapters cover the essential aspects of Fano resonance effects, including theory, modelling and design, proven and potential applications in practical devices, characterization and measurement. Also included are chapters on Fano resonance generation and applications in 3D folding metamaterials, Fano resonances in the linear and nonlinear plasmonic response, and Fano resonances in topological photonic systems, to name a few.

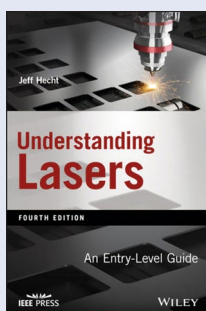


Optics *f2f*

By Charles S. Adams and Ifan G. Hughes

OXFORD UNIVERSITY PRESS: 2018. 288PP. £29.99.

Containing 13 chapters, this book introduces the key concepts of wave optics and light propagation. Through the use of Fourier methods and the angular-spectrum approach, it provides a unified approach to Fraunhofer and Fresnel diffraction. Topics discussed include propagation, dispersion, coherence, laser beams and waveguides, apodization, tightly focused vector fields, unconventional polarization states, optical phenomena in the time domain, light-matter interactions, optical imaging and spatial filtering.



Understanding Lasers

By Jeff Hecht

WILEY: 2018. 608PP. £79.95.

In addition to providing a user-friendly introduction to lasers and how they work, this fourth edition reviews new topics on the physics of optical fibres and fibre lasers, disk lasers and ytterbium lasers. It also includes new sections on laser geometry and implications, diode-laser structures, optimal parametric sources, and 3D printing and additive manufacturing. Details about different types of laser, including fibre, solid state, excimer, helium-neon, carbon dioxide and free electron, are provided in the 14 chapters. Furthermore, the difference between laser oscillation and amplification, the importance of laser gain, and tunable lasers are covered. In the last chapter, new opportunities of lasers in, for example, laser spectroscopy, optical manipulation, detection of gravitational waves, and astronomy are discussed.

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