

# **Excitons In Low Dimensional Semiconductors Theory Numerical Methods Applications Springer Series In Solid State Sciences**

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Excitons In Low Dimensional Semiconductors Low-dimensional semiconductors have become a vital part of today's semiconductor physics, and excitons in these systems are ideal objects that bring textbook quantum mechanics to life. Furthermore, their theoretical understanding is important for experiments and optoelectronic devices. Excitons in Low-Dimensional Semiconductors: Theory ... Low-dimensional semiconductors have become a vital part of today's semiconductor physics, and excitons in these systems are ideal objects that bring textbook quantum mechanics to life. Furthermore,... Excitons in Low-Dimensional Semiconductors Confinement of excitons in low-dimensional structures leads to a strong enhancement of excitonic effect. They have impact on optical properties of these structures up to room temperature even for materials with low excitonic binding in the bulk. We will start in this chapter with the properties of excitons in quasi-2D structures (quantum wells). Excitons in Low-Dimensional Semiconductor Structures ... Corpus ID: 118741923. Excitons in Low-Dimensional Semiconductors: Theory Numerical Methods Applications @inproceedings{Glutsch2004ExcitonsIL, title={Excitons in Low-Dimensional Semiconductors: Theory Numerical Methods Applications}, author={S. Glutsch}, year={2004} } Excitons in Low-Dimensional Semiconductors: Theory ... Compared with the bulk counterparts, low-dimensional semiconductors possess notable Coulomb-interaction-mediated excitonic effects arising from the reduced dielectric screening. As a consequence, excitons or

bound electron-hole pairs, together with charge carriers, serve as the primary photoinduced energetic species. An Excitonic Perspective on Low-Dimensional Semiconductors ... However, most of these coherent excitons have only been observed in some low-dimensional semiconductors when coupled with cavities, as there are large inhomogeneous broadening and dephasing effects... Supertransport of excitons in atomically thin organic ... Excitons in a Hybrid Crystal Lattice In contrast to conventional inorganic semiconductors, the structural lattice of lead halide perovskites is soft and highly polar. Additionally, the combination of organic and inorganic components leads to exciton dynamics that resemble both inorganic 2D QWs and organic semiconductors. Excitons in 2D Organic-Inorganic Halide Perovskites ... In 2017 Kogar et al. found "compelling evidence" for observed excitons condensing in the three-dimensional semimetal 1T-TiSe<sub>2</sub>. Spatially direct and indirect excitons. Normally, excitons in a semiconductor have a very short lifetime due to the close proximity of the electron and hole. Exciton - Wikipedia Atomically thin layers of two-dimensional lead halide perovskite semiconductors exhibit prominent light emission due to the inherently strong quantum and dielectric confinement. Electronic band structures and coupled electron-hole pairs (excitons), which govern the optical properties, are not well understood in these emergent two-dimensional ... Direct and indirect exciton transitions in two-dimensional ... Moreover, thermally activated carriers in traditional III-V and II-VI semiconductors enforce low operating temperatures in the infrared photodetectors. Here we demonstrate infrared photodetection... High

oscillator strength interlayer excitons in two ... Low-dimensional semiconductors have become a vital part of today's semiconductor physics, and excitons in these systems are ideal objects that bring textbook quantum mechanics to life. Furthermore, their theoretical understanding is important for experiments and optoelectronic devices. Excitons in Low-Dimensional Semiconductors | SpringerLink "Measurements like this are useful to study excitons, which in turn determine the light-matter interaction of semiconductors," Högele explains. It was already known that excitons can form in ... Nanophysics: Spectral classification of excitons ... PACS. 78.66.-w Optical properties of specific thin films, surfaces, and low-dimensional structures-71.35.-y Excitons and related phenomena - 71.36.+c Polaritons (including photon-phonon and ... Electro-Optical Properties of Excitons in Low-Dimensional ... The physics of excitons, the bound states of electrons and holes, has been one of the most actively studied topics on these two-dimensional semiconductors, where the excitons exhibit remarkably new features due to the strong Coulomb binding, the valley degeneracy of the band edges and the valley-dependent optical selection rules for interband transitions. Valley excitons in two-dimensional semiconductors ... Excitons in Low-Dimensional Semiconductors Theory Numerical Methods Applications Bearbeitet von Stephan Glutsch 1. Auflage 2004. Buch. xi, 298 S. Hardcover ISBN 978 3 540 20240 0 Format (B x L): 15,5 x 23,5 cm Gewicht: 1360 g Weitere Fachgebiete > Technik > Sonstige Technologien, Angewandte Technik > Angewandte Optik schnell und portofrei ... Excitons in Low-Dimensional Semiconductors - Toc Strong Coulomb interaction

in atomically-thin transition metal dichalcogenides makes these systems particularly promising for studies of excitonic physics. Of special interest are the manifestations of the charged excitons, also known as trions, in the optical properties of two-dimensional semiconductors. In order to describe the optical response of such a system, the exciton interaction with ... Optical properties of charged excitons in two-dimensional ... Excitons in nanoscale materials can exhibit fluorescence fluctuations. Intermittency is pervasive in zero-dimensional emitters such as single molecules and quantum dots. In contrast, two-dimensional semiconductors are generally regarded as stable light sources. Noise contains, however, valuable information about a material.

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