Citation:
Hui Zhao, S. Moehl, S. Wachter, and H. Kalt, *Hot exciton transport in ZnSe quantum wells*, Applied Physics Letters 80, 1391 (2002).

Published version:
Published version: http://link.aip.org/link/doi/10.1063/1.1452793

Other sources:
ArXiv: http://arxiv.org/abs/cond-mat/0209369v1

Key words:
Strongly Correlated Electrons
Mesoscale and Nanoscale Physics

Abstract:
The in-plane transport of excitons in ZnSe quantum wells is investigated directly by microphotoluminescence in combination with a solid immersion lens. Due to the strong Froehlich coupling, the initial kinetic energy of the excitons is well controlled by choosing the excess energy of the excitation laser. When increasing the laser excess energy, we find a general trend of increasing transport length and more importantly a pronounced periodic quenching of the transport length when the excess energy corresponds to multiples of the LO-phonon energy. Such features show the dominant role of the kinetic energy of excitons in the transport process. Together with the excitation intensity dependence of the transport length, we distinguish the phonon wind driven transport of cold excitons and defect-limited hot exciton transport.