



# Exciton spectra and energy band structure of $\text{Cu}_2\text{ZnSiSe}_4$

M. Guc, S. Levchenko, L. Dermenji, G. Gurieva, S. Schorr,  
N. N. Syrbu, E. Arushanov

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## Abstract

Exciton spectra are studied in  $\text{Cu}_2\text{ZnSiSe}_4$  single crystals at 10 and 300K by means of reflection spectroscopy. The exciton parameters, dielectric constant and free carriers effective masses are deduced from experimental spectra by calculations in the framework of a model taking into account the spatial dispersion and the presence of a dead-layer. The structure found in the reflectivity was analyzed and related to the theoretical electronic band structure of close related  $\text{Cu}_2\text{ZnSiS}_4$  semiconductor.