

Magneto-Optical Studies of Exciton Effects in Layer-Type Semiconductors

著者	AOYAGI K., MISU A., KUWABARA G., NISHINA Y., KURITA S., FUKUROI T., AKIMOTO O., HASEGAWA H., SHINADA M., SUGANO S.
journal or publication title	Science reports of the Research Institutes, Tohoku University. Ser. A, Physics, chemistry and metallurgy
volume	19
page range	272-272
year	1967
URL	http://hdl.handle.net/10097/27389

Magneto-Optical Studies of Exciton Effects in Layer-Type Semiconductors*

K. AOYAGI, A. MISU, G. KUWABARA

Department of Physics, University of Tokyo

Y. NISHINA, S. KURITA, T. FUKUROI

Research Institute for Iron, Steel and Other Metals, Tohoku University

O. AKIMOTO, H. HASEGAWA

Department of Physics, Kyoto University

M. SHINADA and S. SUGANO

Institute for Solid State Physics, University of Tokyo

Abstract

Both experimental and theoretical works were performed with particular reference to a layer-type semiconductor, GaSe, for a coherent treatment of the exciton-like and the oscillatory Landau-like spectra appearing in a form of their combination in semiconductors in magnetic fields. The interband magneto-absorption and the Faraday rotation were measured in pulsed magnetic fields up to ~ 200 kOe at low temperatures. The theoretical analysis was based mainly on the exact solution for an extremely anisotropic semiconductor in the magnetic field of arbitrary intensity. The exciton effects are discussed in terms of the energy spectrum, the spectral intensity, and the spectral width by the use of the band parameters deduced from the experimental results.

* The 1338th report of the Research Institute for Iron, Steel and Other Metals. Published in the Journal of the Physical Society of Japan, **21-S** (1966), 174. Proceedings of the International Conference on the Physics of Semiconductors, Kyoto, 1966.