Thermodynamics of the Ideal Two-Dimensional Magnetoexciton Gas with Linear Dispersion Law

© *S.A. Moskalenko* [1], *I.V. Podlesny* [1], *I.A. Zubac* [1], *B.V. Novikov* [2]

[1] Institute of Applied Physics,
MD-2028 Chisinau, Republic of Moldova
[2] Department of Solid State Physics, Institute of Physics, St. Petersburg State University,
198504 St. Petersburg, Petrodvorets, Russia

E-mail: exciton@phys.asm.md, zubac_ion@mail.ru, bono1933@mail.ru

The Bose-Einstein condensation of the two-dimensional magnetoexciton gas with Dirac cone dispersion law is possible at different from zero critical temperature. The partition function, the thermodynamic function such as the free and full energies, entropy and heat capacity were calculated in both gaseous and degenerate phases. The second order phase transition takes place. The jump of the heat capacity at critical temperature does not exist.

Keywords: magnetoexciton, linear dispersion law, two-dimensional Bose gas.

Full text of the paper will appear in journal SEMICONDUCTORS.