

On Generalized Landau Levels

JAN MILEWSKI¹ AND PIOTR KRASOŃ²

¹*Institute of Mathematics, Poznań University of Technology, Piotrowo 3A, 60-965
Poznań, Poland*

jsmilew@wp.pl

²*Institute of Mathematics, Szczecin University, Wielkopolska 15, 70-451 Szczecin*

ABSTRACT

We consider the dispersion of energy levels for both standard and inverted quantum harmonic oscillators in the presence of a uniform electromagnetic field. For this analysis we use a solution of the corresponding eigenproblem in terms of Kummer functions. We find a complete description of the energy levels for a particle of mass m and electric charge q subject to the action of a harmonic oscillator and simultaneous uniform magnetic and electric fields. We also analyze the effect of spin on energy levels for an electron.