

E1-27 Supersymmetric quantum mechanics for an electron in a uniform external magnetic field

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There are two kinds of elementary particles; $1/2$ - integral spin fermions and integral spin Bosons. It is assumed that every fermion has a superpartner boson and every boson has a superpartner fermion. This hypothetical symmetry is expected to be a true symmetry of nature and is known as supersymmetry. There is an algebra behind it which is known as supersymmetric algebra in supersymmetric field theories. It is easy to construct supersymmetric algebra in supersymmetric field theories. It is easy to construct supersymmetric algebra in quantum mechanics as well by defining relevant operators. In this way supersymmetric quantum mechanics can be formulated.

In our paper we address the problem of an electron in a uniform external magnetic field in quantum mechanics in the context of supersymmetric quantum mechanics. We have rederived the Landau levels using supersymmetric quantum mechanics.