

Landau Wavefunction Immediately Derived by Virtue of the $\langle \lambda |$ Representation

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Abstract: We show that by virtue of the $\langle \lambda |$ representation (Hong-Yi Fan, Phys. Lett. A 126 (1987) 150) the Landau wavefunctions of an electron in a uniform magnetic field can be immediately derived without solving the corresponding Schrödinger equation. It turns out that the differential operation form of the electron's dynamic Hamiltonian, adopted in standard quantum mechanics textbooks, is actually expressed in $\langle \lambda |$ representation.

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Key words: electron in uniform magnetic field, wave equation in $\langle \lambda |$ representation

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