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What is the frequency of an electron? ULRICH ZURCHER, Physics Department, Cleveland State University — Particle-wave duality is a central tenet of quantum physics, and an electron has wave-like properties. Introductory texts discuss the wavelength-momentum relationship $\lambda = h/p$, but do not discuss the frequency-energy relationship. This is curious since a wave is periodic both in space and time. The discussion in more advanced texts is not satisfactory either since two different expressions for the frequency are given based on the relativistic and non-relativistic expression for the electron energy. The relativistic expression yields the correct frequency, and we explain why the expression based on the Schrödinger equation gives the *incorrect* expression. We argue that the electron frequency should be discussed at the introductory level.

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