Chapter VII
Quantum mechanics

7.1 Introduction.

On general mathematical grounds using the theory of wavelets we introduce the Heisenberg uncertainty relation. We develop the nonrelativistic quantum mechanical description given by the Schrödinger equation, which is a timelike theory, and a study of the spacelike Heisenberg representation. Quaternionic spacelike theory we have seen is noncommutative, and this is also the situation for the Heisenberg representation. We look at the relationship between these two ideas, which is often described by a unitary transformation. We develop the interaction picture combining these two approaches, introduce the relativistic Dirac equation of the electron, and finally calculate to second order the magnetic moment of the electron.

7.2 The Heisenberg uncertainty relation for wavelets.

7.3 The Schrödinger model in quantum mechanics.

7.4 The Heisenberg model.

7.5 The interaction model.

7.6 The Dirac model of the electron.

7.7 The magnetic moment of the electron.