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*A variational model for relativistic electrons*

I will present a variational model from relativistic quantum mechanics, involving the Dirac operator. The theory allows to describe the state of  $N$  electrons (for instance in an atom or a molecule). But uncommon effects like the polarization of the vacuum or the spontaneous creation of electron-positron pairs can also be described.

This is a summary of several works in collaboration with Christian Hainzl, Philippe Gravejat, Eric Séré and Jan Philip Solovej.