

## Quantum Physics

# Confinement limit of Dirac particles in scalar 1D potentials

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We present a general proof that Dirac particles cannot be localized below their Compton length by symmetric but otherwise arbitrary scalar potentials. This proof does not invoke the Heisenberg uncertainty relation and thus does not rely on the nonrelativistic linear momentum relation. Further it is argued that the result is also applicable for more general potentials, as e.g. generated by nonlinear interactions. Finally a possible realisation of such a system is proposed.

Comments: 2 pages

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## Submission history

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