The effect of cusps in time-dependent quantum mechanics[1]
ZENGHUI YANG, University of Missouri - Columbia, NEEPA MAITRA, Hunter College of the City University of New York, KIERON BURKE, University of California, Irvine — Spatial cusps in initial wavefunctions can lead to non-analytic behavior in time. We suggest a method for calculating the short-time behavior in such situations. For these cases, the density does not match its Taylor-expansion in time, but the Runge-Gross proof of time-dependent density functional theory still holds, as it requires only the potential to be time-analytic.

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