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Non-Empirical Orbital-Free Approximations from Semiclassical Approaches[1] STEFANO PITTALIS, Department of Chemistry, University of California, Irvine, California 92697, USA, A. CANGI, Max-Planck-Institut fuer Mikrostrukturphysik, Weinberg 2, D-06120 Halle, Germany, C.R. PROETTO, Centro Atomico Bariloche and Instituto Balseiro, 8400 San Carlos de Bariloche, Rio Negro, Argentina, E.K.U. GROSS, Max-Planck-Institut fuer Mikrostrukturphysik, Weinberg 2, D-06120 Halle, Germany, K. BURKE, Department of Chemistry and Department of Physics, University of California, Irvine, California 92697, USA — We present a selection of results up to exchange effects obtained from semiclassical approximations aiming at enabling non-empirical and accurate orbital-free methods in models of electronic nanostructures. Insights for improving or better understanding popular density-functional theory approximations will be analyzed.

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