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Marcel Griesemer* (griesemer@mathematik.uni-stuttgart.de), Fachbereich Mathematik, IADM, Universität Stuttgart, Pfaffenwaldring 57, 70569 Stuttgart, Germany. *On the dynamics of polarons in the strong-coupling limit.*

The polaron model of H. Fröhlich describes an electron coupled to the quantized longitudinal optical modes of a polar crystal. In the strong-coupling limit one expects that the phonon modes may be treated classically, which leads to a coupled Schrödinger-Poisson system with memory. For the effective dynamics of the electron this amounts to a nonlinear and non-local Schrödinger equation. We use the Dirac-Frenkel variational principle to derive the Schrödinger-Poisson system from the Fröhlich model and we present new results on the accuracy of their solutions for describing the motion of Fröhlich polarons in the strong-coupling limit. Our main result extends to N -polaron systems. (Received September 25, 2017)