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Electronic correlation effects in the stopping power of ions in 2D materials LOTTE BORKOWSKI, FRANZISKA REISER, JAN-PHILIP JOOST, NICLAS SCHLÜNZEN, MICHAEL BONITZ, Kiel University — The energy loss of charged projectiles in correlated materials is of prime relevance for plasma-surface interaction for which we have developed a nonequilibrium Green functions (NEGF) approach. A particularly interesting effect is the correlation induced increase of stopping power at low velocities\(^1\). However, NEGF simulations are possible only for short time durations, due to the unfavorable \(N_t^3\) scaling with the number of discretization time steps. The situation has changed radically with the recently developed G1-G2 scheme\(^2\), which is based on the generalized Kadanaoff-Baym ansatz in combination with Hartree-Fock propagators, and allows to achieve linear scaling with \(N_t\). This enhancement enables us to improve previous simulations by using better selfenergies\(^3\), studying larger systems and by extending the simulation duration which gives access to slower projectiles. Finally, we will report further improvements of the G1-G2 scheme itself, by taking into account three-particle correlations.