Approaching nonsmooth nonconvex minimization through second order proximal-gradient dynamical systems

Szilárd Csaba László [*]

14.12.2017

Abstract. We investigate the asymptotic properties of the trajectories generated by a second-order dynamical system of proximal-gradient type stated in connection with the minimization of the sum of a nonsmooth convex and a (possibly nonconvex) smooth function. The convergence of the generated trajectory to a critical point of the objective is ensured provided a regularization of the objective function satisfies the Kurdyka-Łojasiewicz property. We also provide convergence rates for the trajectory formulated in terms of the Łojasiewicz exponent.