

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

Szilárd Csaba László *

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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.

*Technical University of Cluj-Napoca, Department of Mathematics, Memorandumului 28, Cluj-Napoca, Romania, e-mail: szilard.laszlo@math.utcluj.ro. This work was supported by a grant of Ministry of Research and Innovation, CNCS - UEFISCDI, project number PN-III-P4-ID-PCE-2016-0190, within PNCDI III.