

# Convergence rates for an inertial algorithm of gradient type associated to a smooth nonconvex minimization

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**Abstract.** We investigate an inertial algorithm of gradient type in connection with the minimization of a nonconvex differentiable function. The algorithm is formulated in the spirit of Nesterov's accelerated convex gradient method. We show that the generated sequences converge to a critical point of the objective function, if a regularization of the objective function satisfies the Kurdyka-Łojasiewicz property. Further, we provide convergence rates for the generated sequences and the objective function values formulated in terms of the Łojasiewicz exponent.

**Key Words.** inertial algorithm, nonconvex optimization, Kurdyka-Łojasiewicz inequality, convergence rate

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