Convergence of inertial dynamics and proximal algorithms governed by maximally monotone operators

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 We study the behavior of the trajectories of a second-order differential equation with vanishing damping, governed by the Yosida regularization of a maximally monotone operator with time-varying index, along with a new Regularized Inertial Proximal Algorithm obtained by means of a convenient finite-difference discretization. These systems are the counterpart to accelerated forward?backward algorithms in the context of maximally monotone operators. A proper tuning of the parameters allows us to prove the weak convergence of the trajectories to zeroes of the operator. Moreover, it is possible to estimate the rate at which the speed and acceleration vanish. We also study the effect of perturbations or computational errors that leave the convergence properties unchanged. We also analyze a growth condition under which strong convergence can be guaranteed. A simple example shows the criticali