
JEAN-MARC BELLEY, Université de Sherbrooke

Anti-periodic solutions of Abel equations with state dependent discontinuities

Given $T > 0$, we study Abel's generalized equation $\theta' = f_0 + \sum_{j \in \mathbb{N}} f_j \theta^j$ for θ and θ' real functions on $[0, T]$ subject to given state dependent discontinuities and each f_j a real function of bounded variation for which $f_j(0) = (-1)^{j+1} f_j(T)$. Under appropriate conditions, this equation is shown to admit a unique solution of bounded variation on $[0, T]$ which is T -anti-periodic in the sense that $\theta(0) = -\theta(T)$. The contraction principle yields a bound for the rate of uniform convergence to the solution of a sequence of iterates.