On dynamical systems with a prescribed globally bp-attracting set

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Given an arbitrary fixed nonempty closed subset $\mathcal{C} \subset \mathbb{R}^n$, we propose an explicit method to construct a dynamical system which admits the regular part of $\mathcal{C}$ as globally bp-attracting set, i.e. a closed and invariant set which attracts every bounded positive orbit of the dynamical system. We apply this result in order to provide an explicit method of leafwise asymptotic bp-stabilization of the regular part of an a-priori given invariant set of a conservative system. The theoretical results are illustrated for the completely integrable case of the Rössler dynamical system.

References

[1] R.M. Tudoran. Dynamical systems with a prescribed globally bp-attracting set and applications to conservative dynamics. *Discrete and Continuous Dynamical Systems Series A*, 40(5) : 3013–3030, 2020.