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Title. A physics-informed neural network method to approximate Lyapunov functions

Abstract. In this talk, I will show how to apply physics-informed neural networks to approximate globally-defined Lyapunov functions and stabilizing controls for homogeneous dynamical systems. The advantage of working with this class of systems is that both analysis and design can be conducted locally on a suitably defined unit sphere, which aligns perfectly with the applicability conditions of neural networks.