

Beyond Square Waves: Coherence-Incoherence patterns in a singularly perturbed Delay Differential Equation

Stefan Ruschel¹

¹*Technische Universität Berlin, Germany (e-mail: ruschel.stefan@googlemail.com)*

We study a singularly perturbed Delay Differential Equation exhibiting solutions of periodically repeating patterns of coherent, almost constant plateaus and incoherent chaotic phases connected by sharp transition layers with period T slightly larger than the delay. We show that under some conditions, this class of coherence-incoherence patterns is also present in a set of reduced equations and is invariant under the time- T solution map of the Delay Differential Equation.