

Local control of an array of globally coupled oscillators

Arūnas Tamaševičius, Elena Adomaitienė, Skaidra Bumeliene

Abstract: Two control methods for stabilization of the steady states in an array of the globally coupled FitzHugh-Nagumo oscillators by means of the local feedback are described. The first technique is based on the proportional feedback with a constant adjustable reference. The second technique is an adaptive one, employing the first order stable filter. The possibility to control an array locally, that is via a single randomly chosen (or accidentally accessed) oscillator has been demonstrated. Mathematical analysis, numerical simulations, and hardware experiments with an electrical circuit imitating dynamics of the mathematical model have been performed.

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- ¹⁾ Arūnas Tamaševičius, Ph.D.: Center for Physical Sciences and Technology, LT-10257 Vilnius, Lithuania (LT), tamasev@pfi.lt , the author presented this contribution at the conference in the special session: "A special session dedicated to Prof. Miguel A.F. Sanjuán on the occasion of the celebration of his 60th anniversary" organized by J. Awrejcewicz.
 - ²⁾ Elena Adomaitienė, Ph.D.: Center for Physical Sciences and Technology, LT-10257, Vilnius, Lithuania (LT), elena.tamaseviciute@ftmc.lt .
 - ³⁾ Skaidra Bumeliene, Ph.D.: Center for Physical Sciences and Technology, LT-10257, Lithuania (LT), skaidra@pfi.lt .