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Clustering Phenomena in Coupled Oscillatory Systems — Inspired by Brain Networks with Different Frequency

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Abstract: In this study, we investigate amplitude change and amplitude death in coupled van der Pol oscillators with different oscillation frequency. The network topology is inspired by the concept of a real brain network. We observe the amplitude death of all oscillators when the coupling strength reaches to the certain value. We also confirm that the characteristics of amplitude death depends on the position of oscillator with different oscillation frequency.

Biography: Yoko Uwate was born in Tokushima, Japan, in 1980. She received her B.E., M.E., and Ph.D. degrees in Electrical and Electronic Engineering from Tokushima University, Tokushima, Japan, in 2003, 2005, and 2006, respectively. During 2006 –2010, she was Post Doctral Resarch Fellow (PD) of the Japan Society for the Promotion Science (JSPS) at Institute of Neuroinformatics (INI), University and ETH Zurich. From April 2010, she has been working at Tokushima University, Japan as an assistant professor. Her research interests include complex phenomena in chaotic circuits and neural networks.