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Title : New directions in bifurcation theory emerging from modeling neurosciences

Abstract :

Several useful models developed in neurosciences, in particular within the weakly coupled oscillators approach, use bifurcation theory and fast-slow systems. This talk will present complex analysis and singularity theory methods to investigate some mathematical problems of this field, including fast-slow version of the Bautin bifurcation, path of periodic orbits connecting two bifurcations, and deformations of bursting oscillations.