998-37-128 **V. S. Afraimovich*** (valentin@cactus.iico.uaslp.mx), A. Obregon 64, 78000 San Luis Potosi, SLP, Mexico, and **M. I. Rabinovich** (mrabinovich@ucsd.edu), La Jolla, San Diego, CA 92093-0402. *Reproducibility of transient dynamics in a model of neural networks.* Preliminary report.

There is a lot of experimental evidence that many neural networks generate similar spatio-temporal patterns to answer the similar sensory inputs. It can be easily explained in terms of models having attractors (like Hopfield model), However for networks producing transient patterns there was no explanation. In the talk we hypothesize that reproducibility phenomenon is related to winnerless competition principle [1]. By using the Lotka-Volterra type system we show that a heteroclinic circuit exists in the phase space that consists of saddle fixed points and connecting them one dimentional separatrixes. We derive conditions of stability of such a heteroclinic circuit under which the reproducibility of the switching from one "pattern" to the next one obtains a natural explanation.

1.VS.Afraimovich,M.I.Ravinovich,P.Varona, Heteroclinic contours in neural ensembles and the winnerless competition principle. International Journal of Bifurcation and Chaos, Volume 14(4)(2004). (Received February 20, 2004)