1164-37-56 **Stefano Galatolo*** (stefano.galatolo@unipi.it), Largo Pontecorvo, 56127 Pisa, Italy. *The existence of Noise Induced Order, a computer aided proof.*

Dynamical systems perturbed by noise appear naturally as models of physical systems. In several interesting cases the mathematical understanding of these systems can be approached rigorously by computational methods (computer aided proofs).

By the help of suitable computer aided estimates, we show the existence of noise induced order in the model of chaotic chemical reactions where it was first discovered numerically by Matsumoto and Tsuda in 1983. We show that in this random dynamical system the increase of noise causes the Lyapunov exponent to decrease from positive to negative, stabilizing the system. The method is based on a certified approximation of the stationary measure in the L^1 norm. This is done by an efficient algorithm which is general enough to be adapted to any dynamical system with additive noise on the interval. Time permitting we will also talk about linear response of such systems when the deterministic part of the system is perturbed deterministically. (Received January 11, 2021)