

# Homework # 1

PhD course. Systems Biology: nonlinear mechanistic models

Claudio Altafini, Linköping University

Fall 2015

In the following paper

Tyson JJ, Chen KC, Novak B. *Sniffers, buzzers, toggles and blinkers: dynamics of regulatory and signaling pathways in the cell*. Curr Opin Cell Biol. 2003 Apr;15(2):221-31.<sup>1</sup>

several "elementary mechanisms" of biological pathways are surveyed in detail. You should simulate them in Matlab (or any other software), giving a (sufficiently detailed) description of their characteristic behavior.

---

<sup>1</sup>Note that there exist an errata for the paper, see  
[https://www.ima.umn.edu/2007-2008/T4.17-18.08/activities/Tyson-John/COCB\\_Errata.pdf](https://www.ima.umn.edu/2007-2008/T4.17-18.08/activities/Tyson-John/COCB_Errata.pdf).