

Abstract Submitted  
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**Coherently amplified negative feedback loop as a model for NF-kappaB oscillations** JAEWOOK JOO, Department of Physics, University of Tennessee — The cells secrete various signaling molecules as a response to an external signal and modulate its own signaling processes. The precise role of this autocrine and/or paracrine signaling on cell information processing is mostly unknown. We will present the effect of TNF alpha autocrine signaling on NF-kappaB oscillations, using a simplified model of coherently amplified negative feedback loop. We will discuss the bifurcation diagram (i.e., dose-response curve), especially the robustness and the tenability of the period of NF-kappaB oscillations. Finally, we will compare the results from the above model with those from a previous model of time-delayed negative feedback alone.

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