

Regulation of burstiness by network-driven activation

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We prove that complex networks of interactions have the capacity to regulate and buffer unpredictable fluctuations in production events. We show that non-bursty network-driven activation dynamics can effectively regulate the level of burstiness in the production of nodes, which can be enhanced or reduced. Burstiness can be induced even when the endogenous inter-event time distribution of nodes' production is non-bursty. We find that hubs tend to be less controllable than low degree nodes, which are more susceptible to the networked regulatory effects. Our results have important implications for the analysis and engineering of bursty activity in a range of systems, from social interactions to transcription and translation of genes into proteins in cells.

References

- [1] Guillermo García-Pérez, Marián Boguñá, M. Ángeles Serrano Regulation of burstiness by network-driven activation *arXiv:1410.3816* (2014).