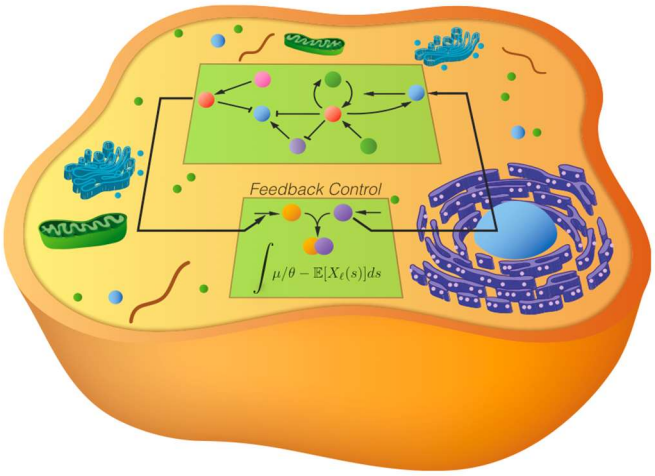
IEEE Control Systems Letters (L-CSS)

Call for submissions to L-CSS Special Issue: "Control and Network Theory for Biological Systems"



Credit: Khammash Lab, ETH

The L-CSS invites submissions for **a special issue** on "**Control and Network Theory for Biological Systems**" (to be included, tentatively, in the January 2019 issue of L-CSS).
Authors are invited to submit **six-page** manuscripts for review on this topic. The deadline for initial submissions is: **May 31, 2018**.
Submission instructions can be found in the L-CSS website at
http://ieee-cssletters.dei.unipd.it/Page_authors.php?p=1

Guest Editors:

- **Murat Arcak**, University of California at Berkeley, USA
- **Franco Blanchini**, Università degli Studi di Udine, Italy
- **Mathukumalli Vidyasagar**, IIT Hyderabad, India and University of Texas at Dallas, USA

Feedback control and interconnections are not only fundamental ingredients in contemporary control systems, but also pervasive principles of nature: the functioning of complex biological and ecological systems, at all scales, relies on myriads of entangled feedback loops.
Control-theoretic, system-theoretic and graph-theoretic tools are particularly well-suited for disentangling this astounding complexity and understanding the dynamic and steady-state behavior of natural systems.
Methods from control theory have been successfully employed not only to provide important insight into natural phenomena, but also to aid the rational design of synthetic biological systems.

This special issue intends to collect new ideas and contributions at the frontiers of the field of control and network theory for biological systems.
The primary aspect of any contribution should be novelty and originality. Also, the results should be presented in a mathematical language, according to the L-CSS standard.

Specific topics of interest for this special issue include, but are not limited to:

- systems biology: analysis of biochemical reaction networks, gene regulatory networks, molecular systems and cell systems;
- stability, robustness, dynamic and steady-state behavior of biological systems;
- modeling and identification of biological networks;
- graph-theoretical approaches for biological networks;
- stochastic models in biology:
- synthetic biology: design of biological feedback control systems *de novo*;
- analysis of ecological systems and strategies for ecosystem management;
- dynamics of epidemics, infections and contagion;
- design of optimal therapies for diseases and smart drug delivery.

A manuscript submitted to the special issue should be **six pages long** in the journal format (style files are available on PaperPlaza), which is a strict limit.
The contribution may also be accompanied by **supplementary material**, as is customary in biology journals (up to 9 additional pages are possible). However, according to the journal policy, **the value of the submission shall be decided based only the main paper**, which must be self-contained, namely, the results can be understood and checked without reading the supplement.
The supplement is intended to present complementary information, such as simulations, videos, figures, or examples, but not, for instance, theorem proofs or definitions. Some mathematical background can be added to the supplement, for the reader's convenience, if it is already existing in the literature. However, crucial new derivations must be in the main paper.

The manuscripts will be peer-reviewed by international experts. According to the L-CSS policy, the final decision will be made within two rounds of reviewing with no exceptions. The final decision will be reached no later than 5 months from the initial submission deadline.

Important dates
Submission deadline: May 31, 2018;
(Accepted) Papers online publication: within one week from the submission of the final manuscript and in any case no later than 6 months after initial submission.