



Indian Institute of Science
Centre for BioSystems Science and Engineering
BSSE Seminar



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**Constructing feedback assisted dynamic molecular
circuits and systems**

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ABSTRACT:

The result of a few billion years of evolution: every living cell performs the efficient computation in a complex environment by converting a multitude of chemical and physical inputs using linear or non-linear functions to generate diverse output responses that ultimately aid its survival. Aided by this natural blueprint, and motivated by the functionality of electronic computers, an important goal of nanotechnology and synthetic biology is to introduce engineering-level speed and precision in building biological circuits and devices for sensing and responding to complex environmental changes in controllable and autonomous ways. Inspired by this, I will be presenting my recent work on the development of a biomolecular integral feedback controller and protein signal exchange circuit. I will conclude this talk by presenting an overview of my future research plans on constructing diagnostic and therapeutic devices and tools that will have the capabilities to address future challenges.