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**German Enciso.** *ACR control circuits for stochastically modeled reaction networks under multiscaling.* Preliminary report.

In this talk, we provide a systematic control of a given biochemical reaction network through an additional network model reacting with the existing network system. This control module is designed to confer so-called absolute concentration robustness (ACR) to a target species in the controlled network system. We show that when the original network system is modeled stochastically under a multiscaling regime, we use a control module with which a target species in the controlled network system approximately follows a Poisson distribution centered at the robust concentration value. For this framework, we use the well-known deficiency zero theorem (Anderson et al, 2010) and multiscaling model reduction methods. We also show that the controlled system admits robust perfect adaptation to transient perturbations and uncertainties in the model parameters. (Received July 14, 2019)