

**Wednesday, September 26, 2018**

**3:00-3:30 p.m.**

**Matias Zurbriggen, Ph.D.**

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**Plant and mammalian synthetic biology approach for the understanding and control of cellular processes**

We integrate plant and mammalian cell systems to develop synthetic chemically and light-regulated switches (optogenetics) and biosensors for the targeted control and monitoring of cellular processes at high spatiotemporal and quantitative resolution. The synthetic tools and methods are also implemented in orthogonal cellular platforms for studying biological signaling networks, including light and plant hormone responses. Central to this strategy is the development of mathematical model-descriptions of the systems. Finally, we implement the knowledge obtained *in vivo* in animals and plants, and into biotechnological applications. This synthetic biology approach opens up unforeseen perspectives in fundamental and applied research, as exemplified hereby in the biomedical field, crop design as well as for the production of high value biopharmaceuticals.