



LUDWIG-
MAXIMILIANS-
UNIVERSITÄT
MÜNCHEN

CRC 235
EMERGENCE OF LIFE



October 2018 Graduate School Meeting

When: Monday, Oct 22nd 2018

Where: Room H522, 5th floor, Schellingstr. 4, Munich

Time	Event
11:00-12:30	<i>General Scientific Training</i> Homochirality in Biological Systems (Prof. Oliver Trapp)
12:30-13:00	Coffee Break
13:00-15:00	<i>Guest Speaker: Talk & Discussion with catered lunch</i> Kamesh Narasimhan (Church Lab, Harvard University) Engineering Synthetic living systems with an Orthogonal Central Dogma
15:00-15:30	Coffee Break
15:30-16:15	<i>Workshop:</i> Confluence: Online sharing platform of CRC 235 (Dr. Christof Mast)
16:15-17:15	<i>Brainstorming & Stupid Questions</i>
17:15-open end	<i>Dinner – Drinks & Introduce yourself & your project:</i>

Guest Lecture Abstract: The directional flow of Genetic information in living systems referred to as the "Central Dogma" involves intricate processes such as DNA replication, RNA transcription, and protein translation. Recent advances in Synthetic biology have enabled the development of Orthogonal components such as tRNA synthetases, tRNAs, Ribosomes and Polymerases which could all be one day integrated into a functional network whose roles are Orthogonal to the endogenous processes of the host cell. Several challenges and therefore opportunities for future young scientists remain in this field -- i.e. to develop technologies to incorporate multiple, distinct, consecutive artificial nucleotides or non-standard amino acids in the genomes and proteomes, while also enforcing orthogonality. When such a living cell can be made to depend on the production of artificial nucleotides or non-standard amino acids for its survival, we may have arrived at alternative definitions of building a living system with the same central dogma but of an orthogonal biochemistry.