

# INORGANIC CHEMISTRY SEMINAR



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## “Synthetic Nanorobot – from Individual Microswimmer to Active Swarm”

**Abstract:** Over 60 years ago, Prof. Richard Feynman envisioned that, in principle, machines could be made so tiny, we can use them to construct matters from atomic/molecular scale; nanorobots can perform surgeries and deliver drugs at cellular level. Sixty years later, the scientific community finds an inconvenient truth: many scientific challenges remain to be solved before nanodocor can really enter clinics. In this talk, I will start with the realization of the synthetic microswimmers with optical navigation capability to discuss how light can be used to manipulate designed semiconductor microparticles at high precision. I will then showcase how simple theoretical consideration in surface kinetics can help make microswimmer particles more biocompatible and operational in the biological environment. At last, I will envision an intelligent, active swarm system based on complex chemical interaction networks which may be used as a true nanosurgeon in the future.

**Wednesday, April 21<sup>st</sup> 2021**