Title: Synchrony based evolution of microtubule and its applications

Name: Dr. Satyajit Sahu

Affiliation: National Institute for Materials Science, Advanced Nano Characterization Unit, Tsukuba, Japan, 305 0047

Abstract:

Exploring protein with only one resonating circuit had restricted its application within the domain of chemical self-assembly. We find that the secondary structures of proteins build multiple resonating circuits, for tubulin, seven circuits resonantly vibrate to synchronize ~40000 tubulins instantly even under non-coherent pumping. Radio-wave induced synchrony is so robust that it turns tubulin's condensation reaction 200000 times faster by arranging them in cylindrical shape even before the reaction begins. The momentary burst of laser-like signal during condensation depicts a phase and frequency locked synchrony that enables microtubule to exhibit identical electronic properties for any length. When molecules that evolve different species are pumped with tubulin, condensation fuses them to those seven regions; new properties are added, keeping fundamental properties intact. This shades light on the programming of nature's complex evolution, provides tool to atomically engineer synchrony for rapid production of new generation materials and instantly test newly designed drugs.