



Magic numbers in protein phase transitions

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Biologists have recently come to appreciate that eukaryotic cells are home to a multiplicity of non-membrane bound compartments, many of which form and dissolve as needed for the cell to function. These dynamical “condensates” enable many central cellular functions – from ribosome assembly, to RNA regulation and storage, to signaling and metabolism. While it is clear that these compartments represent a type of separated phase, what controls their formation, how specific biological components are included or excluded, and how these structures influence physiological and biochemical processes remain largely mysterious. I will discuss recent experiments on phase separated condensates both in vitro and in vivo, and will present theoretical results that highlight a novel “magic number” effect relevant to the formation and control of two-component phase separated condensates.

Wednesday

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4:00 P.M.

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