Protein droplets and the physics of intracellular phase separation

Cells contain compartments (organelles), bounded by membranes, within which particular functions are localized. Recently it has been realized that many functional compartments are not bounded by membranes, but rather are phase separated droplets of concentrated protein and nucleic acid. These can form and dissolve as needed, and enable many crucial cellular functions, from ribosome assembly to RNA regulation and storage, and from signaling to metabolism. What controls droplet condensation and dissolution? How are specific components included or excluded? How do these structures influence the dynamics of cellular processes? Here we will explore recent experimental and theoretical developments that address these questions.

Friday 1 December 2017
Advanced Science Research Center Auditorium
85 Saint Nicholas Terrace, New York, NY

10:00 AM Coffee and bagels

10:30 AM Protein disorder and liquid phase separation
       Shana Elbaum-Garfinkle, Advanced Science Research Center and
       The Graduate Center, CUNY

12:00 PM Lunch

1:30 PM Mechanism and functions of phase separation by multidomain proteins
       Michael Rosen, UT Southwestern Medical Center and HHMI

3:00 PM Coffee

3:30 PM Protein phase transitions in and out of cells
       Ned Wingreen, Princeton University

5:00 PM Informal discussion continues in ASRC Cafe

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