UNIVERSITÄT DUISBURG ESSEN | PHYSIK E=

Physikalisches Kolloquium

Mittwoch, 02.11.2022
13:00 Uhr
MC 122 und Zoom

https://uni-due.zoom.us/j/61481460592?pwd=NTBkdk1xNWtFdnk1TTdtZkI0UllzUT09 (gilt für alle Vorträge)

Physics of phase separation inside biological cells

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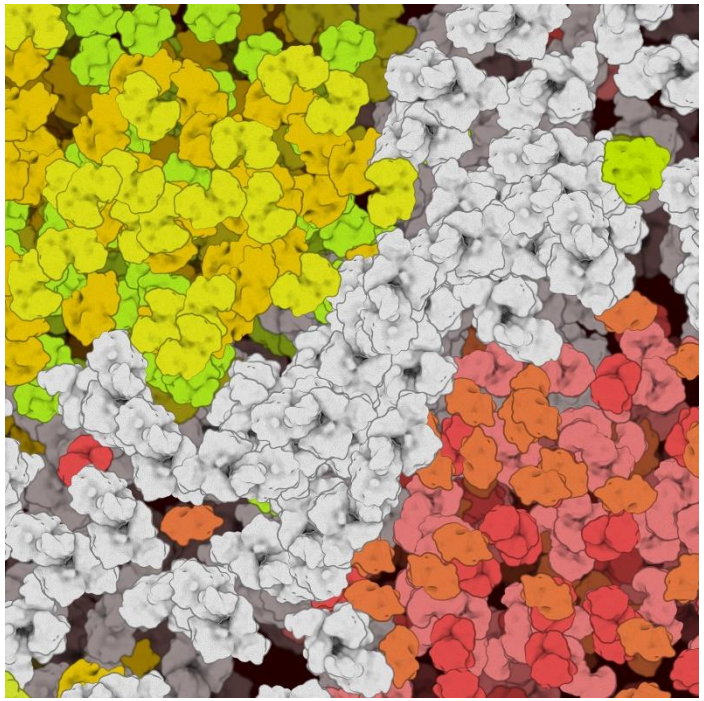

Phase separation has emerged as an essential concept for the spatial organization of biomolecules inside cells since it explains how spontaneously forming droplets serve as membrane-less subcellular compartments. Yet, traditional theories of phase separation cannot explain how cells control these droplets. The complex intracellular environment poses at least three challenges: 1) How can droplets form robustly amid thousands of different biomolecules? 2) How do droplets interact with other cellular structures, notably the cytoskeleton? 3) How do active processes affect droplets? Using examples of these three topics, I will demonstrate in my talk how cells leverage physical principles to regulate the size, number, and location of their droplets. Similar mechanisms may allow controlling droplets in technical applications in the future.