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Super-resolution imaging of transcription in living cells

Monday, 18 November 2024 14:00 (30 minutes)

We will discuss the latest efforts in our laboratory to develop highly sensitive methods of microscopy, to go directly inside living cells and uncover the behavior of single biomolecules as they effect their function in transcription. Transcription is the first step in gene expression regulation, during which genetic information on DNA is decoded into RNA transcripts. Methodologically, the so-called live cell single molecule and super-resolution techniques – that break the optical diffraction limit – are revealing with unprecedented spatial and temporal resolutions, novel emergent phenomena inside the living cells. We will discuss our recent discoveries on highly dynamic biomolecular clustering, and phase transitions in vivo. These discoveries are challenging the 'textbook view' on how our genome (DNA) is decoded in living cells.

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Session Classification: Plenary

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