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Theoretical Physics & Statistical Mechanics

Phase transitions in the nucleus of cells shape chromatin 3D architecture and functions

Gene regulation is mediated by the establishment of physical contacts between genes and distal regulatory regions along the DNA molecule, yet the fundamental mechanisms governing genome 3D architecture and function remain incompletely elucidated. In my talk I will review some recent findings, integrating polymer physics, machine learning, and molecular biology experiments, showing that phase transitions are important mechanisms that control chromosome structure and function [1-6]. These results could also guide the development of new diagnostic and therapeutic tools for genetic diseases, such as congenital disorders and cancer [7-10].

October 16, 2025, Thursday, 03:00 pm

Ludwig Prandtl Hall, MPI-NAT, Faßberg Campus, Göttingen

Hosted by Prof. Dr. Argyris Papantonis

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