

Speaker Abstracts Karlsruhe Days of Optics & Photonics



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3D organization and genetic information retrieval in the biological cell nucleus

The biological cell selectively retrieves genetic information from its genome. The specific genomic regions that are accessed depend on the type and current function of a given cell, and the selective access is directly reflected in the three-dimensional (3D) organization of the genome. In our work, we investigate how physical properties, such as differential compaction of genomic regions, and molecular information transfer are coordinated. While our approaches also include molecular cell biology and mathematical modeling, in this talk I will especially highlight our use of live cell and super-resolution fluorescence microscopy.