

1. Record Nr.	UNINA9910253929303321
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Titolo	Chromatin Architecture : Advances From High-resolution Single Molecule DNA Imaging / / by Kirti Prakash
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2017
ISBN	9783319521831
Edizione	[1st ed. 2017.]
Descrizione fisica	1 online resource (LIII, 152 p. 101 illus., 50 illus. in color.)
Collana	Springer Theses, Recognizing Outstanding Ph.D. Research, , 2190-5053
Disciplina	572.87
Soggetti	Cytology Spectrum analysis Microscopy Nucleic acids Cell Biology Spectroscopy and Microscopy Nucleic Acid Chemistry Spectroscopy/Spectrometry
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"Doctoral Thesis accepted by Institute of Molecular Biology, Mainz and Heidelberg University, Germany."
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	A Condensed History of Chromatin Research -- Investigating Chromatin Organisation Using Single Molecule Localisation Microscopy -- Structure, Function and Dynamics of Chromatin -- Periodic and Symmetric Organisation of Meiotic Chromosomes -- Conclusions -- Appendices.
Sommario/riassunto	This book sheds new light on the current state of knowledge concerning chromatin organization. Particular emphasis is given to the new imaging potential offered by super-resolution microscopy, which allows DNA imaging with a very high labeling density. From the early work on chromosomes by Walther Flemming in the nineteenth century to recent advances in genomics, the history of chromatin research now spans more than a century. The various milestones, such as the discovery of the double helix structure, the sequencing of the human

genome, and the recent description of the genome in 3D space, show that understanding chromatin and chromosome function requires a clear understanding of its structure. Presenting cutting-edge data from super-resolution single molecule microscopy, the book demonstrates that chromatin manifests several levels of folding, from nucleosomes to chromosomes. Chromatin domains emerge as a new fundamental building block of chromatin architecture, with functions possibly related to gene regulation. A detailed description of chromatin folding in the pachytene stage of meiosis serves as a model for exploring this functionality, showing the apparent interplay between structure, function, and epigenetic regulation. Lastly, the book discusses possible new avenues of innovation to describe chromatin's organization and functions. Gathering essential insights on chromatin architecture, the book offers students an introduction to microscopy and its application to chromatin organization, while also providing advanced readers with new ideas for future research.
