



ISTITUTO ITALIANO
DI TECNOLOGIA

PhD Program in Science and Technologies for the Earth and the Environment

Curriculum **Biology applied to Agriculture and Environment**

Nanoscopy Research Theme – cycle XXXVII

Nuclear architecture and chromatin remodelling are the central regulators of cell identity and fate. Today we can follow chromatin organization mechanisms at the molecular level, taking advantage of a multimodal optical approach as the one provided by super-resolved optical fluorescence microscopy coupled with label-free CIDS (circular intensity differential scattering signature). The project focuses on neuroblastoma (NB), the most common extracranial solid tumour in childhood. Since the molecular and genetic mechanisms involved in NB are still partially unknown, we aim characterizing changes of chromatin nanoscale architecture correlated with NB transformation. The research will integrate multimodal optical data towards the outcome of unveiling whether NB-associated chromatin alteration locates in correspondence of specific territories or genes and paving the way towards new prognostic and therapeutic approaches.

Project supervised and tutored by Francesca Baldini (IIT), Laura Vergani (DISTAV-UNIGE), Alberto Diaspro (IIT, DIFI-UNIGE). Preferred degree: Molecular and cellular Biology, Biotechnology, Physics (Biophysics), Bioengineering.