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SEMINAR 1:

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Wed. May 28, 14:30-15:30:

SPEAKERS: **Marco Di Stefano and Sandro Bottaro (SISSA)**

TITLE: **"Multiscale modeling of biomolecules: from small RNAs to chromosomes"**

ABSTRACT:

A new avenue of investigations in Physics involves Biomolecules, which carry out every single process in living systems. Typical examples of biomolecules include nucleic acids (DNA and RNA), that store and convey genetic information, and proteins, that are involved in a large number of fundamental biological processes.

Cutting-edge experimental techniques provide quantitative measure of the physical properties of biomolecules, from which their structure and dynamics can be inferred. The emerging picture is that the structural and dynamical features of biomolecules is intimately linked to their function.

The available experimental methodologies are typically very expensive, time consuming, and can often provide only indirect information. Hence, the development of theoretical tools to study biomolecules provided in recent years powerful tools that complement the experimental results. In particular, computational techniques offer the unbeatable edge in that they can in principle follow the dynamics of biomolecules completely: the position of each particle at any given time of the biomolecule can be described.

In our seminar we will give an overview of the activities of our group, which are focused on the development and application of theoretical and computational approaches to study the structural organization and the dynamical behaviour of biomolecular systems, from small RNA molecules to large human chromosomes.