

Report from Training School “4D Epigenome”

Palazzo Cavalli-Franchetti, Venice, 3-5 October 2019

Abstract:

Genomes are dynamically re-organised in response to internal and external perturbations for instance during development, ageing, disease, etc. Understanding the fundamentally non-equilibrium mechanisms that regulate genome re-organisation and its plasticity while ensuring robust transmission of genetic and epigenetic information is a key challenge in biology and biophysics for the future.

In this meeting we are bringing together leaders in the fields of molecular biology, chromatin structure, genome organisation and modelling to establish an interdisciplinary community and the basis of a coordinated effort to tackle these outstanding challenges.

Report:

This training school has been organized with the aim of developing dissemination and cross-disciplinary skills and knowledge among the members of the EUTOPIA network. Early career scientists in the field of polymer physics, biophysical modelling, molecular biology and bioinformatics were the main target audience. 12 ECIs from EUTOPIA and 20 in total participated to the event. We had 22 international speakers from Europe and USA and 50 participants in total.

The school was organised so that the first half day was made up of lectures for the training school. The lectures were open to all the attendees and the material is now deposited online in the EUTOPIA website and accessible to all members.

The rest of the first and second days were occupied with lectures from leading figures in the field of genome organisation, both from the modelling and experimental sides.

Among these we invited speakers from world leading institutions in Europe (**R Metzler** (Potsdam), **C Dekker** (TUDelft), **M Bienko** (Karolinska), **A Pombo** (Max Delbrück Centre Berlin) and **K Rippe** (Cancer centre Heidelberg)) and the USA (**L Mirny** from MIT, **A Spakowitz** from Stanford and **D Thirumalai** from Texas Austin)

This part of the meeting was funded by CECAM and the University of Padova.

Finally, the last day was again devoted to EUTOPIA and in particular to develop dissemination skills of the ECIs attending. There were 8 talks from EUTOPIA ECIs which were all of very high standard. After the talks they received questions and feedback from the audience and more experienced researchers. In addition to this, all 12 EUTOPIA ECIs (and all others participating to the event, 20 ECIs in total among 50 participants) had the opportunity to present their research at the poster area which was purposely assembled near the coffee break area so that any opportunity for proficient scientific discussion was exploited at best.

We feel that the meeting has been a success. We received spontaneous positive feedback in regards to the high quality of speakers and the balance between modellers and experimentalists. In particular, the choice of speakers has been such that the atmosphere was typically very informal thus helping ECIs to ask for feedback and to approach more senior figures in their field. This gave them the opportunity to network

with experienced and talented scientists. From direct feedback, we have learned that some of the ECIs started independent collaborations thanks to this meeting; We made sure that any future output originating from this event will include a suitable acknowledgement for the networking support provided by the COST action EUTOPIA.

On behalf of the organisers,

Davide Michieletto