

Scientific Report:

The design of the Geneva Physics of Biology International meeting 2013 was made to present a broad overview of all types of research at the interface of Physics and Biology, from soft-matter physics, theory, statistical mechanics to cell biology, genetics, development. It was also made to present to the Geneva scientific community the far edge of research in this wide field, and attract interest of the Geneva community to the growing field of quantitative life sciences.

During the meeting, we had presentations of theoreticians (T. Tlusty, C. Soulé, J. Prost, F. Jülicher) who presented conceptual tools to approach dynamics of genetic networks, or of growing organs/cancer. We also had experimental physicists (U. Alon, S. Grill, P. Nassoy, M. Dogterom) who presented how the theoretical models can be compared to experimental results, and how to measure accurately the relevant parameters for accurate validation of the model. Also, we had presentation by a variety of biologists that have made efforts to develop quantitative tools and theory to explain important biological processes (T. Hyman, T. Lecuit, A. Oates, O. Pourquié). Finally, we had a few presentations by scientists developing methods for measuring physical parameters or analyzing results (J-P. Wolf & W. Brodland). Many scientists (Prost, Jülicher, Grill, Nassoy, Pourquie, Lecuit, Hyman, Oates and Brodland) were specifically focusing on tissue development, growth and regulation of cell cycle, which obviously, is a major interest of the Quantissue consortium.

All together, the meeting reached its goal, as more than half of the audience was composed of scientists coming from the Arc Lémanique region and from various fields (biology/physics/computer sciences/mathematics). The friendly atmosphere during breaks and lunches, as well as extended time for discussion (15' per hour, 45' for presentations) allowed us to obtain a very interactive meeting. Already, by creating new bounds between different departments of the University of Geneva, we can see the fruitful results of our meeting. This meeting, obviously could not have been possible without the help of Quantissue and ESF in general. By this, all the organizers would like to deeply thank the Quantissue/ESF organization for financial support to this meeting.