**UNITO-POLITO CONFERENCE SERIES IN CANCER**

***Imaging of Cancer Dynamics***

March 7-9, 2018

“La Cavallerizza Hall”

University of Torino

Via Verdi 9-Torino

[www.cancerto.it](http://www.cancerto.it)

**PROGRAM**

**AIM OF THE WORKSHOP-** Cancer is a multistep disease, which is inherently dynamic. Early steps in carcinogenesis are often extremely hard to describe as they involve a wide variety of interactions between normal and carcinogenic tissue and the microenvironment. At the same time, even when the tumor is already considered developed or already gave rise to metastasis, it is continuously changing to adapt to the local microenvironment and evade the immune system and the therapy. While traditional approaches often focus on a static and monotypic disease, it is now established that cancer evolves over time from both genetic and phenotypic points of view, therefore requiring a deep knowledge of the dynamic processes underlying cancer progression and response to treatment.  
Recent and tremendous technical advances in imaging technologies have boosted the use of live imaging in life science and medicine in general and in cancer research in particular. The use of non-invasive, high time and space resolution techniques has been fundamental in the progress of cancer research of the last years. Imaging techniques allow to resolve and describe accurately genetic variations, phenotypic switches, mechanisms of resistance and quiescence, mechano-biological and growth patterns.  
The University and the Polytechnic of Torino organize a workshop to discuss the applications of imaging to study the dynamic inherent nature of cancer in its most paradigmatic views and approaches: cancer cell biology, metabolism, metastatization, molecular level and quantitative approaches.

**March 7th**

12.00–14.00 Registration

**IMAGING OF CANCER METABOLISM**

**14.15 – 15.00**

Kevin BRINDLE- Department of Biochemistry. University of Cambridge- Cambridge (UK)

**Imaging tumour metabolism using hyperpolarized 13C-labelled cell substrates – From mouse to man**.

**15.00 – 15.45**

Clemens LOWIK-Department of Radiology. Leiden University- Leiden (NL)

**New optical imaging tools to image cancer and their translation to the clinic**

**15.45– 16.30**

Vasilis NTZIACHRISTOS – Technical University of Munich- Munich (D)

**New abilities in cancer imaging using multispectral optoacoustic tomography**

**16.30-16.45** short talkselected form the abstract

**16.45-17.15** break

**SUPER-RESOLUTION APPROACHES**

**17.15-18.00**

Alberto DIASPRO- Italian Institute of Technology- Genova (I)

**Liquid tuneable microscopy to study chromatin-DNA**

**18.00-19.00- Keynote Lecture**

Zena WERB- Department of Anatomy, University of California-San Francisco, (CA, USA)

**Insights into breast cancer metastasis using single** cell technologies

**19.00 – 20.30 Peri-cena - POSTER DISCUSSION**

**20.30** Faculty dinner

**March 8th**

**CANCER MOLECULAR DYNAMICS**

**08.30 – 9.15**

Brent HOFFMAN- Department of Biomedical Engineering, Duke University -Durham, (NC-USA)

**Visualizing Molecular Forces Across Specific Proteins in Living Cells**

**9.15-10.00**

Andrea PICCO- Department of Biochemistry, University of Geneva- Genève, (CH)

**The *in vivo*architecture of the exocyst complex visualised by quantitative fluorescence microscopy**.

**10.00-10.45**.

Olivier PERTZ- Insitute of Cell Biology, University of Bern- Bern (CH)

**Imaging MAPK signaling networks controlling cell fate decisions**

**10.45-11.00** short talkselected form the abstract

**11.00-11.30** Break

**DYNAMICS OF CANCER AND METASTAZING CELLS-I**

**11.30-12.15**

Erik SAHAI -The Francis Crick Institute-London (UK)

**Imaging Therapy Failure**

**12.15 -13.00**

Gaudenz DANUSER- Department of Bioinformatics and Cell Biology , UT Sothwestern Medical Center- Dallas (TX, USA)

**Relating shape and prosurvival signals in cancer cells**

**13.00 –13.30:** lunch

**13.30-15**: **poster discussion**

**DYNAMICS OF CANCER AND METASTAZING CELLS-I**

**15.00-15.45**

Maria SOLEDAD SOSA- Icahn School of Medicine at Mount Sinai, New York (NY, USA)

**The Biology of Cancer Dormancy: Relevance to Metastasis**

**15.45-16.30**

Andrew EWALD- Department of Cell Biology, Johns Hopkins University- Baltimore (MD, USA)

**Beyond invasion: metastatic dynamics during systemic spread and organ colonization**

**16.30-17.15**

John CONDEELIS- Albert Einstein College of Medicine- New York (NY, USA)

**Large volume high resolution intravital imaging identifies the mechanisms of vascular invasion and metastatic seeding during breast cancer progression**

**17.15 -18.00**

Ernst STELZER- Buchmann Institute for Molecular Life Sciences, Goethe University-Frankfurt (D)

**Investigating and analyzing dynamic three-dimensional multi-cellular clusters**

**18-18.15** Break

**18.15-19.00**

Peter FRIEDL- Institute for Molecular Life Sciences, Radboud University, Nijmegen (NL)

**Plasticity of Cancer Cell Invasion**

**19.15-19.30**  short talkselected form the abstract

**March 9th**

**DYNAMICS OF CANCER-STROMA INTERACTIONS**

**08.30 – 9.15**

Mikala EGEBLAD- Cold Spring Harbor Laboratory, Cold Spring Harbor, (NY, USA)

**Neutrophil Extracellular Traps Promote Breast Cancer Metastasis and Escape**

**from Dormancy"**

**9.15 -10.00**

Mark VENDRELL- Queen's Medical Research Institute, University of Edinburgh- EdinburgH (UK)

**Dynamic Activatable Fluorophores**

**10.00-10.45**

Vincent CHAN - Department of Pathology, University of California at San Francisco- San Francisco (CA,USA)

**Mapping the immune landscape of human tumor microenvironments using multi-scale immunoprofiling strategies**

**10.45 -11.00** Break

**IMAGING BASED MODELLING**

**11.00-11.45**

Kristine SWANSON- Department of Neurosurgery, Mayo Clinic- Phoenix (AR,USA)

**11.45 -12.30**

Eiko ENDERLING – Integrated Mathematical Oncology, H.Lee Moffit Cancer Center, Tampa (FL,USA)

**Local and systemic effects of cancer radiotherapy**

**12.30-13.15**

Kevin PAINTER-Department of Mathematics, Heriot-Watt University- Edinburgh (UK)

Anisotropic models for glioma growth

**13,15-13.30** short talkselected form the abstract

**13.30-14.00** Lunch and end of the meeting