

Models in Cancer Therapy

Wolfgang Pauli Institute, Vienna
www.wpi.ac.at

July 1 – July 2, 2016

Workshop Venue:

WPI

Fakultät f. Mathematik, Univ. Wien

Oskar Morgenstern Platz 1, 1090

This workshop is proposed to highlight the recent advances and new perspectives in *Mathematical Oncology*. Some focus is given on the role of applied analysis and computational mathematics.

The meeting brings together researchers from different disciplines, with talks aimed at the general audience. It provides a unique opportunity both for technical discussions and general exchange of ideas in all areas involving mathematical and computational sciences, modeling and simulations, as well as their applications in cancer biology and clinics.

Organizers:

- Walter Berger (Medical University Vienna)
- Marie Doumic Jauffret (INRIA Paris Rocquencourt)
- Doron Levy (University of Maryland)
- Norbert J. Mauser (WPI & U. Vienna)
- Christian Schmeiser (WPI & U. Vienna)

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Friday July 1, 2016

9:45-9:50 **Norbert Mauser** (WPI Director)
Welcome to WPI

9:50–10:30 **Jean Clairambault** (INRIA, Rocquencourt & Jacques-Louis Lions Lab, UPMC Paris)
Heterogeneity and drug resistance in cancer cell populations: an evolutionary point of view with possible therapeutic consequences

10:30–10:50 COFFEE BREAK

10:50–11:30 **Anna Christina Obenauf** (Institute of Molecular Pathology, Vienna)
Unintended consequences of targeted cancer therapy: Therapy induced tumor secretomes fuel drug resistance and tumor progression

11:30–12:10 **Joseph Ciccolini** (Aix-Marseille)
Not enough money on this earth: will pharmacometrics save oncology?

12:15–13:45 LUNCH

13:45–14:25 **François Vallete** (Nantes)
Biological analysis of the drug resistance acquisition in a glioma cell line

14:25–14:55 **Camille Pouchol** (INRIA, Rocquencourt & Jacques-Louis Lions Lab, UPMC Paris)
Optimal control of combined chemotherapies in phenotype-structured cancer cell populations evolving towards drug resistance

14:55–15:20 COFFEE BREAK

15:20–16:00 **Walter Berger and Thomas Mohr** (Medical University, Vienna)
Modeling factors contributing to glioblastoma aggressiveness

16:00–16:40 **Tommaso Lorenzi** (St Andrews)
Observing the dynamics of cancer cell populations through the mathematical lens of structured equations

20:00 DINNER @ Summerstage

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Saturday July 2, 2016

- 9:30–10:10 **Zhou Xu**
(Sorbonne Universités, UPMC Univ Paris 6, Institut de Biologie Physico-Chimique)
Telomere length dynamics and senescence heterogeneity: when size matters
- 10:10–10:30 COFFEE BREAK
- 10:30–11:10 **Luis Almeida** (Jacques-Louis Lions Lab, UPMC Paris)
Mathematical models for epithelial tissue integrity restoration
- 11:10–11:50 **Thomas Stiehl** (Heidelberg)
Heterogeneity in acute leukemias and its clinical relevance – insights from mathematical modeling
- 11:50–13:30 LUNCH
- 13:30–14:00 **Shalla Hanson** (Duke)
Toxicity Management in CAR T cell therapy for B-ALL: Mathematical modelling as a new avenue for improvement
- 14:00–14:30 **Thomas Eder** (Ludwig Boltzmann Institute for Cancer Research, Vienna)
The Normalization Visualization Tool or how to choose an adequate normalization strategy for RNA-Seq experiments
- 14:30–15:00 **Dana-Adriana Botesteanu** (University of Maryland)
Modeling the Dynamics of High-grade Serous Ovarian Cancer Progression for Transvaginal Ultrasound-Based Screening and Early Detection
- 15:00–15:20 COFFEE BREAK
- 15:20–16:00 **Alexander Lorz** (University of Paris 6 & KAUST)
Population dynamics and therapeutic resistance: mathematical models
- 16:00 Workshop Ends