Workshop: Models in Cancer Therapy

Wolfgang Pauli Institute, Vienna
www.wpi.ac.at
July 2 – July 3, 2015

Workshop Venue:
Lecture room HS 13, 2nd floor,
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)
- Doron Levy (University of Maryland)
- Norbert J. Mauser (WPI c/o U. Vienna)

Keynote Speakers:

- **Alexander Anderson** (Moffitt Cancer Center)
- **Walter Berger** (Medical University Vienna)
- **Jean Clairambault** (INRIA, Rocquencourt)
- **Andras Czirok** (University of Kansas)
- **Christopher Gerner** (Institute for Analytical Chemistry, University of Vienna)
- **Florian Grebien** (Boltzmann Institute for Cancer Research, Vienna)
- **Doron Levy** (University of Maryland)
- **Anna Marciniak-Czochra** (University of Heidelberg)
- **Jörg Menche** (CEU Budapest)
- **Benoit Perthame** (University of Paris 6)
- **Olivier Saut** (CNRS, INRIA, Bordeaux)
- **Peter Sykacek** (Department of Biotechnology, BOKU, Vienna)
- **Gergely Szakacs** (Medical University Vienna)

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Thursday July 2, 2015

9:00–9:50 **Alexander Anderson** (Moffitt Cancer Center)
An integrated approach to understanding tumor-stromal interactions in cancer progression and treatment

9:50–10:10 COFFEE BREAK

10:10–11:00 **Florian Grebien** (Boltzmann Institute for Cancer Research, Vienna)
Functional studies of leukemia oncoproteins using integrated approaches

11:00–11:50 **Olivier Saut** (CNRS, INRIA, Bordeaux)
Data assimilation in tumor growth modeling: towards patient calibrated models using imaging devices

11:50–13:30 LUNCH

13:30–14:20 **Jean Clairambault** (INRIA, Rocquencourt)
Drug resistance in cancer: biology, medicine, and modeling

14:20–15:10 **Peter Sykacek** (Department of Biotechnology, BOKU, Vienna)
Probabilistic models in translational cancer research: converting low level leads to comprehensible predictions

15:10–15:30 COFFEE BREAK

15:30–16:20 **Doron Levy** (University of Maryland)
Modeling the immune response to chronic myeloid leukemia

16:20–17:10 **Christopher Gerner**
(Institute for Analytical Chemistry, University of Vienna)
Investigation of anticancer drug effects via proteome and metabolome profiling: do we really understand what these drugs are doing?

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Friday July 3, 2015

9:00–9:50 **Anna Marciniak-Czochra** (University of Heidelberg)
Mathematical models of clonal selection and therapy resistance in acute leukemias

9:50–10:10 COFFEE BREAK

10:10–11:00 **Benoit Perthame** (University of Paris 6)
The derivation of free-boundary (incompressible) models for tumor growth and the Hele-Shaw asymptotic

11:00–11:50 **Walter Berger** (Medical University Vienna)
Activity of defense: modeling the anticancer drug response

11:50–13:30 LUNCH

13:30–14:20 **Jörg Menche** (CEU Budapest)
Human diseases in the interactome

14:20–15:10 **Gergely Szakacs** (Medical University Vienna)
Modeling in vitro selection of drug resistant cancer cells using a cellular automaton model

15:10–15:30 COFFEE BREAK

15:30–16:20 **Andras Czirok** (University of Kansas)
Contribution of cell contractility to mesothelioma nodule formation