

Workshop: Models in Cancer Therapy

Wolfgang Pauli Institute, Vienna

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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** (Heidelberg)
- **Jörg Menche** (CEMM, Vienna)
- **Benoit Perthame** (University of Paris 6)
- **Olivier Saut** (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** (Heidelberg)
Mathematical models of clonal selection and therapy resistance in acute leukemias
- 9:50–10:10 COFFEE BREAK
- 10:10–11:00 **Jörg Menche** (CEMM, Vienna)
Human diseases in the interactome
- 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 **Benoit Perthame** (University of Paris 6)
The derivation of free-boundary (incompressible) models for tumor growth and the Hele-Shaw asymptotic
- 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