



The Fourth Annual Workshop on Mathematics in Medicine, Vienna 2018

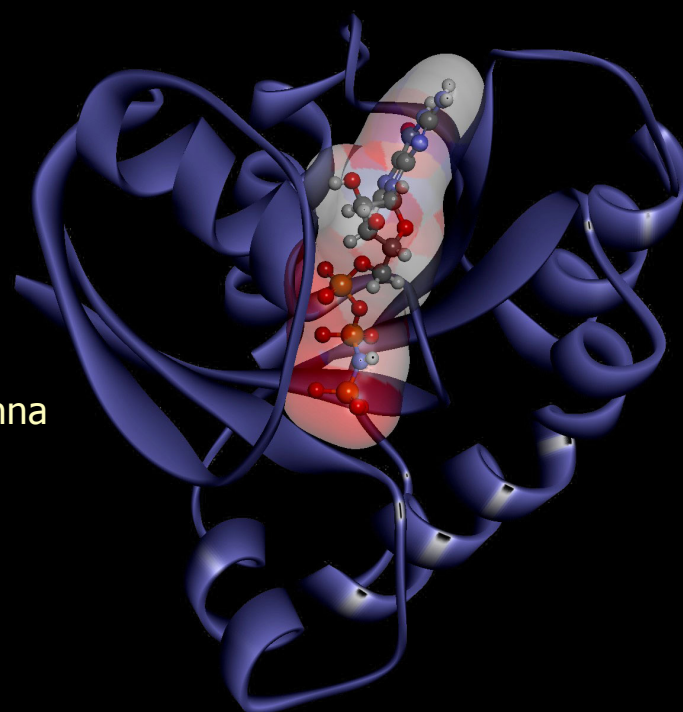
Mathematical Models in Cancer

July 20 - July 21, 2018

Location: Fak. Math. Univ. Wien, Oskar-Morgenstern-Platz, A1090

Speakers:

Sebastien Benzekry	INRIA Bordeaux-Sud Ouest
Michael Bergmann	Medical University of Vienna
Jean Clairambault	INRIA & LJLL, Sorbonne Université, Paris
Francesca Cordero	University of Torino
Jana Gevertz	College of New Jersey
Florian Grebien	Ludwig Boltzmann Institute for Cancer Research, Vienna
Ronald Kefurt	Medical University of Vienna
Anna Kicheva	IST Austria
Ursula Klingmüller	German Cancer Research Center (DKFZ)
Alexander Lorz	KAUST & LJLL, Sorbonne Université, Paris
Philip Maini	Oxford University
Marius Mayerhöfer	Medical University of Vienna / MSKCC New York
Diane Peurichard	INRIA & LJLL, Sorbonne Université, Paris
Jesús M. Seoane	Universidad Rey Juan Carlos



KRAS protein structure
Image courtesy of the National Cancer Institute

Organizers:

Michael Bergmann	Medical University of Vienna
Marie Doumic Jauffret	INRIA & WPI
Doron Levy	University of Maryland
Norbert J. Mauser	WPI c/o Univ. Wien

Goals:

The workshop will provide mathematicians, experimentalists, and clinicians, an opportunity to discuss recent advances in mathematical biology and medicine.

The meeting will be used to identify new problems that require innovative mathematical approaches and to foster new collaborations.

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WPI, INRIA, ERC by project SKIPPERAD, FWF by DK "Nonlinear PDEs", SFB "Taming Complexity in PDEs"

For more information: www.wpi.ac.at
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Mathematical Models in Cancer

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

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Workshop Venue:

WPI
Fakultät f. Mathematik, Univ. Wien
Oskar Morgenstern Platz 1, 1090

Organizers:

- Michael Bergmann (Medical University of Vienna)
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- Norbert J. Mauser (WPI c/o U. Vienna)

Workshop: Mathematical Models in Cancer
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Friday – July 20, 2018

- 9:00–9:10 **Norbert Mauser** (WPI Director)
Opening Remarks
- 9:10–9:50 **Philip Maini** (Oxford University)
Mathematical Modelling of Angiogenesis
- 9:50–10:30 **Michael Bergmann** (Medical University of Vienna)
Understanding and Modulation of the Immune infiltrate in Solid Cancer
- 10:30–11:00 COFFEE BREAK
- 11:00–11:40 **Florian Grebien** (Ludwig Boltzmann Institute for Cancer Research, Vienna)
Identification of Actionable Nodes in Cancer-Specific Protein Networks
- 11:40–12:20 **Sebastien Benzekry** (INRIA Bordeaux-Sud Ouest)
Mathematical Modeling and Prediction of Clinical Metastasis
- 12:20–14:00 LUNCH
- 14:00–14:40 **Diane Peurichard** (INRIA & LJL, Sorbonne Université, Paris)
A Multi-Scale Approach for Models of Tumor Growth: From Short-Range Repulsion to Hele-Shaw Problems
- 14:40–15:20 **Marius Mayerhöfer** (Medical University of Vienna / MSKCC New York)
Novel Trends in Cancer Imaging: From Hybrid Techniques to Radiomics
- 15:20–15:45 COFFEE BREAK
- 15:45–16:25 **Jesús M. Seoane** (Universidad Rey Juan Carlos)
Dynamics of Tumor and Immune Cell Aggregates
- 16:25–16:55 **Karl-Heinz Nening** (Medical University of Vienna)
The changing global functional connectivity structure in patients with glioblastoma
- 19:30 DINNER

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Saturday – July 21, 2018

- 9:00–9:40 **Jean Clairambault** (INRIA & LJLL, Sorbonne Université, Paris)
Evolutionary Viewpoint on Drug Resistance in Cancer Cell Populations with Perspectives in Therapeutic Control, and Open General Questions on Cancer with Respect to Evolution
- 9:40–10:20 **Ursula Klingmüller** (German Cancer Research Center, DKFZ)
Model-Based Optimization of Personalized Anemia Treatment in Chronic Diseases
- 10:20–10:40 COFFEE BREAK
- 10:40–11:20 **Francesca Cordero** (University of Torino)
Multiscale Models to Investigate IntraTumor Heterogeneity.
- 11:20–12:20 **Jana Geverz** (College of New Jersey)
Identifying Robust Optimal Cancer Treatment Protocols from Small Experimental Datasets
- 12:20–14:00 LUNCH
- 14:00–14:40 **Anna Kicheva** (IST Austria)
Coordination of Progenitor Specification and Growth in the Developing Spinal Cord
- 14:40–15:20 **Ronald Kefurt** (Medical University of Vienna)
TBA
- 15:20–15:45 COFFEE BREAK
- 15:45–16:25 **Alexander Lorz** (KAUST & LJLL, Sorbonne Université, Paris)
Mathematics Meets Oncology: from Adaptive evolution to Zebrafish
- 16:25–16:30 **Doron Levy** (University of Maryland)
Closing Remarks