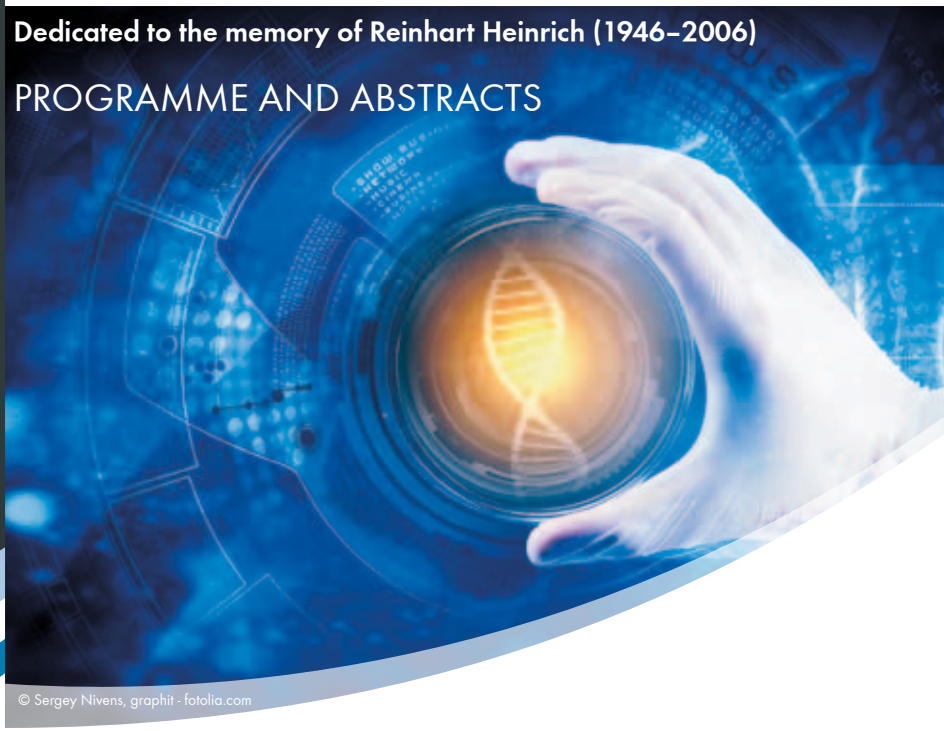
ISGSB 2016 JENA

INTERNATIONAL STUDY GROUP FOR SYSTEMS BIOLOGY

Dedicated to the memory of Reinhart Heinrich (1946–2006)

PROGRAMME AND ABSTRACTS



4–7 OCTOBER 2016

JENA, GERMANY

www.isgsb2016.de

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Venue
Friedrich-Schiller-University of Jena
Auditorium maximum
(YSGSB: Lecture hall 24)
Fürstengraben 1 • 07743 Jena/DE

Date
4–7 October 2016

Conference website
www.isgsb2016.de

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Friedrich-Schiller-University of Jena
Department of Bioinformatics
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Did you know?

Conventus is the Professional Congress Organiser for the ISGSB*

*International Study Group for Systems Biology

conventus
CONGRESSMANAGEMENT

Dear colleagues,

It is our great pleasure to welcome you to the 2016 meeting of the International Study Group for Systems Biology (ISGSB) in Jena. As you know, the biennial ISGSB meetings are devoted to advancing the biological sciences by exploring the interplay between mathematical modelling, computer simulation and wet-lab experiments. ISGSB (formerly BTK) had dealt with topics of Systems Biology even before that term was coined. Models can be presented and discussed in more detail than usual at other conferences. Moreover, as in some earlier meetings, there will be special scientific and social activities by the Y(oung)SGSB (early career ISGSB).

ISGSB 2016 is devoted to the memory of one of the founders of Systems Biology, Reinhart Heinrich (1946–2006). His sudden death was a shock to the community. A decade later, we want to come together to exchange and discuss scientific ideas in his lively and innovative spirit. We are honoured to announce that Tom A. Rapoport (Harvard) will present the Reinhart Heinrich lecture. Together with him, Reinhart established Metabolic Control Analysis in the early 1970s (in parallel to Henrik Kacser and Jim Burns in Edinburgh). As many of you remember, Reinhart liked telling jokes and anecdotes and played the violin. Thus, let us enjoy the social programme in his spirit as well.

Jena is a lively city shaped by Science. The university (founded in 1558), Max Planck-Leibniz- and Fraunhofer institutes, the Carl Zeiss Jena GmbH and many biotech companies with young and dynamic researchers provide an incredible impetus to the city. On a larger scale, Germany provides an excellent framework for research in Systems Biology, as witnessed by the numerous funding schemes by the German Ministry of Education and Research (e. g. “GerontoSys” and the “Virtual Liver Network”) and other agencies.

Our meeting will cover several topics of Systems Biology in various sessions. Abstracts (including those of posters) are printed in this brochure and (unless authors specifically object to this) made available online. The proceedings will be published in Biochemical Society Transactions by invitation; for each talk and the three best posters, a mini-review can be submitted. Due to the large number of excellent submissions, it was very difficult to select the contributed talks. In the spirit of ISGSB, poster sessions are very important and will hopefully inspire many fruitful discussions.

We thank the Deutsche Forschungsgemeinschaft (DFG) for generous sponsorship to the meeting (by direct funding and via the Research Training Programme 1715 and the Transregio 124 “FungiNet”), jenakultur for providing various conference materials and the Thalia bookshop for the poster prizes. Moreover, we are very grateful to the Conventus Company (Jena), in particular Mrs. Kreutzmann, for excellent organisation, the International Advisory Board of ISGSB for reviewing the abstracts and for advice, and the session coordinators and chairs. We extend a special thank you to Johann Rohwer (on sabbatical in Jena right now) for assistance. Regrettably, we cannot list all the numerous people who help(ed) us in making this meeting possible, but we thank all of them!

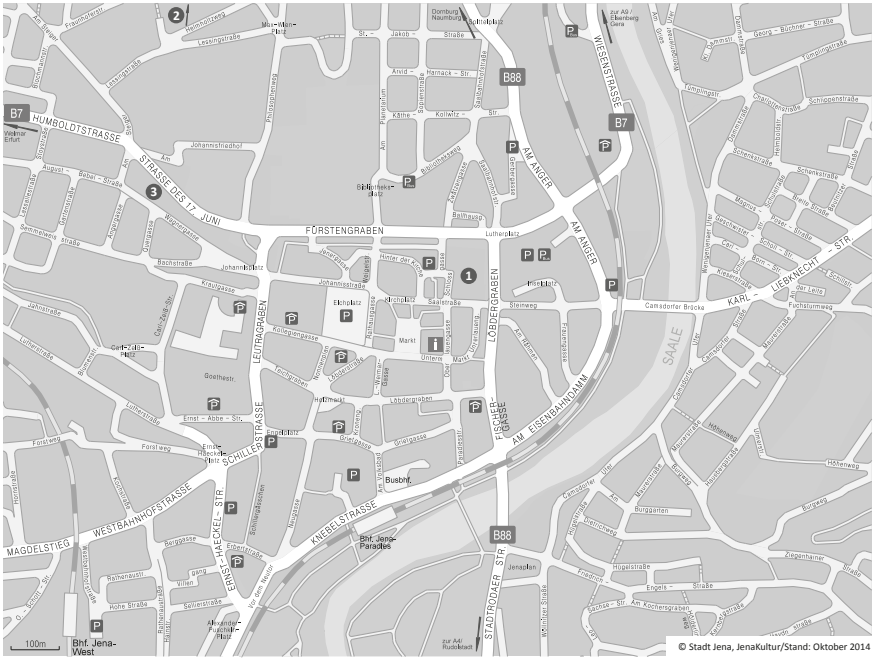
We are looking forward to an exciting meeting!

Stefan Schuster, Sybille Dühring and Sebastian Henkel
(on behalf of the organising committee)

General terms and conditions
Please find our general terms and conditions at www.isgsb2016.de.

Parking
The location only offers very few parking spaces next to the main building at the "Schlossgasse".
You can either use the car parks "Neue Mitte" (Leutragraben 1) or "Eichplatz" (Eichplatz square) both within walking distance of the conference venue.

City map



(1) The ISGSB meeting will take place at the Auditorium maximum in the main building (Universitätshauptgebäude), Fürstengraben 1, 07743 Jena/DE

(2) The conference dinner (on Thursday, 18:45) will take place at the Panorama-Restaurant Landgrafen, Landgrafenstieg 25, 07743 Jena.

(3) The career evening of the YSGSB (on Wednesday, 19:00) will take place at the Cafe Wagner, Wagnergasse 26, 07743 Jena

Painting in the Main Auditorium
The painting is by Swiss painter Ferdinand Hodler (1909), entitled "Jena Students Depart for the War of Liberation, 1813"

Certificate of attendance
Certificates of attendance will only be made available on the last day of the conference at the check-in desk.

Name badge
Please wear your name badge during all conference events, including the networking activities. Admission to scientific sessions and to the poster exhibition is restricted to participants wearing their badge. Participants will receive their name badge when collecting their conference documents at the check-in desk.

Cloakroom
The coat and luggage room at the conference is situated directly in the lecture hall and is provided free of charge. However, it is unattended and the conference organisation cannot accept any liability for damage or loss to personal items.

Opening hours	Tuesday	Wednesday	Thursday	Friday
Check-In	09:00–19:00	08:30–18:30	08:30–16:30	08:30–14:00
Poster Exhibition	08:30–22:00	08:30–18:30	08:30–16:30	08:30–13:00

Internet/WIFI access
In addition to Eduroam, a special conference WIFI is available free of charge throughout the whole conference area. Please ask at the check-in desk for the login data.

Publication of abstracts
All abstracts of oral presentations and posters are published at the end of this programme book.

Poster sessions
All poster sessions will take place on the ground and first floors of the conference venue.

Poster session	Wednesday, 5 October	16:50–18:30 hrs
Poster session	Thursday, 6 October	14:30–16:20 hrs

Submission of a presentation/technical information
The presentation should be prepared as PDF, MS Office PowerPoint for Windows or Keynote for Macintosh DVD in format 4:3.

A presentation notebook with a PDF reader and MS Office PowerPoint 2016 will be provided. The use of personal notebooks is possible upon prior arrangement.
However, it may interrupt the flow of the programme in the lecture hall. The beamer works with a VGA input. Please provide an adapter if necessary.

Presentation upload
It is possible to upload your presentation directly in the lecture hall. For submission, please use a USB flash drive, CD or DVD disc that is not protected by any software. Professional staff and equipment will be available for you to arrange and preview your presentation.
To guarantee a smooth running programme please upload your presentation in advance: at least 2 hours before your presentation is due to start. Should you wish to use non-digital equipment, please contact us at julian.unger@conventus.de.

Time allocation
Please prepare your presentation for the allotted amount of time. Chairs and moderators may interrupt should you overrun your time limit.

Guided tour Jena

"Jena – between History and High-tech"

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Important personalities studied and taught at the university which was founded in 1558. The poet Friedrich Schiller taught here. The physicist Ernst Abbe and the entrepreneur Carl Zeiss developed pioneering optical products in Jena. We will show you the Collegium Jenense, the birthplace of the university, St. John's Gate (Johannistor) and the Powder Tower (Pulverturm), the market square with the historic town hall, the City Church of St. Michael and much more.

Date	6 October 2016, 16:30–17:30
Meeting point	Friedrich-Schiller-University of Jena Auditorium maximum Fürstengraben 1/main entrance 07743 Jena/DE
Costs	7.50 EUR/person (English tour) 6.00 EUR/person (German tour)

Conference dinner

We would like to invite you to the conference dinner to the "Panorama-Restaurant Landgrafen".
We will commence together with a walk to the restaurant to enjoy the breath-taking view over Jena as well as a delicious buffet.

© Landgrafen Restaurant & Event GmbH

Date	6 October 2016, 18:45–23:00
Meeting point	18:15 Main entrance of the conference venue
Venue	Panorama-Restaurant Landgrafen Landgrafenstieg 25 07743 Jena/DE
Costs	included in conference fee 40 EUR for accompanying persons

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Tuesday, 4 October	Wednesday, 5 October	Thursday, 6 October	Friday, 7 October
09:00–09:30 Registration YSGSB	09:00–10:50 **Session 1** Infection modelling	09:00–10:50 **Session 4** Biological thermodynamics	09:00–10:50 **Session 6** Multiscale systems medicine
09:30–10:55 **YSGSB** Opening address Infection modelling Regulatory interactions			
11:20–12:30 **YSGSB** Plant physiology Biological thermodynamics	11:30–13:20 **Session 2** Regulatory interactions and signalling	11:30–13:20 **Session 5** Optimality principles	11:30–13:20 **Session 7** Metabolic pathway analysis
			13:20–14:00 Closing ceremony
14:00–15:45 **YSGSB** Optimality principles Multiscale modelling Metabolic pathways	14:30–16:20 **Session 3** Plant physiology and development	14:30–16:20 Poster session	
16:30–17:00 Registration ISGSB	16:50–18:30 Poster session	16:30–17:30 Guided tour Jena	
17:00–18:30 **ISGSB** Opening Welcome note Reinhart Heinrich lecture			
		18:45 Conference dinner	
19:00 Welcome reception	19:00 **YSGSB** Career evening		

09:00	**Arrival and registration YSGSB**
09:30	**Opening address** Sybille Dühring and Sebastian Henkel
09:45	Infection modelling Jana Schleicher (Jena/DE)
10:20	Regulatory interactions Sascha Schäuble (Jena/DE)
10:55	Coffee break
11:20	Plant physiology Ruth Großeholz (Heidelberg/DE)
11:55	Biological thermodynamics Adélaïde Raguin (Düsseldorf/DE)
12:30	Lunch
14:00	Optimality principles Veronika Kopylova (Moscow/RU)
14:35	Multiscale modelling Agnieszka Wegrzyn (Groningen/NL)
15:10	Metabolic pathways Kailash Adhikari (Oxford/GB)
15:45	Coffee break
16:30	**Registration ISGSB**
17:00	**Opening** Stefan Schuster (conference chair)
17:05	**Welcome note** Thorsten Heinzel (Vice-president of Jena University)

17:15 **Reinhart Heinrich lecture (Opening lecture)**
A tribute to Reinhart Heinrich and mathematical modeling
Tom Abraham Rapoport (Boston, MA/US)

19:00–21:00 **Welcome reception**
(partly in parallel, until 22:00) Music event for ISGSB – please bring your scores and instruments
Foyer of the Auditorium maximum

09:00–10:50 **Session 1 – Infection modelling**
Chairs Barbara Bakker and Manja Marz

09:00 Invited talk: Diversity of immune receptor repertoires
Aleksandra Walczak (Paris/FR)

09:35 Virtual infection-inflammation models of *Aspergillus fumigatus* in the human lung
Sandra Timme (Jena/DE)

10:00 Estimation of merozoite release quantity during growth of *Plasmodium falciparum* in red blood cell cultures
Maria Oosthuizen (Stellenbosch/ZA)

10:25 Mathematical modeling of plus-strand RNA virus genome replication to identify potential drug targets
Carolin Zitzmann (Greifswald/DE)

10:50–11:30 Coffee break

11:30–13:20	**Session 2 – Regulatory interactions and signalling**
Chairs	Ines Heiland and Johannes Wöstemeyer
11:30	Invited talk: The NAD metabolome – bioenergetics, signalling and emerging therapeutic applications Mathias Ziegler (Bergen/NO)
12:05	Inferring co-evolution in signaling proteins and regulatory RNAs by maximum entropy based approaches Alexander Schug (Eggenstein-Leopoldshafen/DE)
12:30	Collective behavior of beta cells in pancreatic tissue Marko Marhl (Maribor/SI)
12:55	Modeling of signaling pathways in complex networks Leonie Amstein (Frankfurt am Main/DE)
13:20–14:30	Lunch
14:30–16:20	**Session 3 – Plant physiology and development**
Chairs	Ursula Kummer and Günter Theißen
14:30	Invited talk: The Arabidopsis kinome – phylogeny and evolutionary insights into functional diversification Waltraud Schulze (Stuttgart/DE)
15:05	Mixotrophy in microalgae – diverse metabolic modes for utilisation of organic carbon in relation to photosynthesis Eva Albers (Gothenburg/SE)
15:30	Constraint-based analysis in developing tomato fruit reveals the respiration climacteric Sophie Colombié (Villenave d'Ornon Cedex/FR)
15:55	Multilevel modeling of ecosystems – *Phaeodactylum tricornutum* and its associated microbial community Antonella Succurro (Düsseldorf/DE)
16:20–16:50	Coffee break

16:50–18:30 **Poster session**

19:00–22:00 **Career evening for YSGSB**
Café Wagner
Wagnergasse 26, 07743 Jena/DE

09:00–10:50 **Session 4 – Biological thermodynamics**
Chairs Marta Cascante and Yaroslav Nartsissov

09:00 Invited talk: Mechano-energetic coupling in cardiac pumping and heart failure
Daniel Beard (Ann Arbor, MI/US)

09:35 Ultrasensitivity of multisite systems
Christian Mazza (Fribourg/CH)

10:00 Computer modeling of cytochrome c oxidase H^+/e^- efficiency
Viktoria Titova (Moscow/RU)

10:25 Thermodynamic and regulatory principles of the Calvin-Benson-Bassham cycle
Oliver Ebenhöh (Düsseldorf/DE)

10:50–11:30 Coffee break

11:30–13:20	**Session 5 – Optimality principles**
Chairs	Christine Dillmann and Pu Li
11:30	Invited talk: Optimality, but not perfection Edda Klipp (Berlin/DE)
12:05	Evaluating the stoichiometric and energetic constraints of cyanobacterial diurnal growth Alexandra-M. Reimers (Berlin/DE)
12:30	Identification of optimal strategies for state transition of complex biological networks Meichen Yuan (Hangzhou/CN)
12:55	Dynamic optimisation of pathway regulation reveals the unexploited potential of toxic intermediates as drug targets Jan Ewald (Jena/DE)
13:20–14:30	Lunch
13:45–14:45	Business meeting
14:30–16:20	**Poster session**
16:30–17:30	**Guided tour Jena**
18:45–23:00	**Conference dinner at “Landgrafen”**

09:00–10:50	**Session 6 – Multiscale systems medicine**
Chairs	Gunnar Cedersund and Dominik Driesch
09:00	Invited talk: From systems biology to medical decision support Steen Andreassen (Aalborg/DK)
09:35	Living on the edge – substrate competition explains loss of robustness in mitochondrial fatty-acid oxidation disorders Karen van Eunen (Groningen/NL)
10:00	Understanding disease and drug-effects at the whole body level in malaria patients Jacky Snoep (Stellenbosch/ZA; Amsterdam/NL; Manchester/GB)
10:25	Investigating hypotheses describing the negative brain responses in fMRI using a systems biology approach Sebastian Sten (Linköping/SE)
10:50–11:30	Coffee break
11:30–13:20	**Session 7 – Metabolic Pathway Analysis**
Chairs	Athel Cornish-Bowden and Johann Rohwer
11:30	Invited talk: Genome-wide prediction of resource allocation in bacteria Anne Goelzer (Jouy-en-Josas/FR)
12:05	Application of Elementary Modes Analysis to a metabolic model of *Geobacillus thermoglucosidasius* for optimisation of butanol yield Hassan Hartman (Oxford/GB)
12:30	A vicious cycle in mammalian fatty-acid oxidation Anne-Claire M. F. Martines (Groningen/NL)
12:55	Identification and applications of moiety conservation relations for metabolic networks Hulda Haraldsdóttir (Belvaux/LU)
13:20	**Closing ceremony**

Session 1 – Infection modelling

P1 Modeling the host-pathogen interactions of macrophages and *Candida albicans* using game theory and dynamic optimisation
Sybille Dühring (Jena/DE)

P2 Dimensionality of motion but not receptor morphology governs affinity of receptor-ligand binding as revealed by molecular agent-based models
Teresa Lehnert (Jena/DE)

P3 Iron redistribution after *Candida albicans* infection in the murine kidney
Theresia Conrad (Jena/DE)

P4 Investigating *Candida albicans* resistance in whole-blood assays by virtual infection models using parallelised parameter estimation
Maria Praußе (Jena/DE)

P5 Simulation of the dynamics of primary immunodeficiencies in CD4+ T-cells
Gabriel Teku (Lund/SE)

P6 Regulatory networks in the response of human monocytes to fungal and bacterial pathogens
Michael Weber (Jena/DE)

P7 Mathematical modeling of plus-strand RNA virus genome replication to identify potential drug targets
Carolin Zitzmann (Greifswald/DE)

P8 Influence of vitamins A and D on long non-coding RNAs of human monocytes during infection with fungi *A. fumigatus*, *C. albicans* and bacteria *E. coli*
Konstantin Riege (Jena/DE)

P9 Comparison of differentially expressed genes in two human cell lines infected with Zaire and Reston Ebolaviruses
Nelly F. Mostajo Berrospi (Jena/DE)

Session 2 – Regulatory interactions and signalling

P11 Large scale heterogeneities create massive metabolic and transcriptional responses in *E. coli* – elucidating regulatory kinetics and ATP demands
Ralf Takors (Stuttgart/DE)

P12 Dopamine, norepinephrine, and serotonin produce no significant effect on the growth of *Lactobacillus acidophilus* (*helveticus*) NK-1
Alexander Oleskin (Moscow/RU)

P13 Genome-wide gene regulatory network in the opportunistic human pathogenic fungi *Aspergillus fumigatus*
Silvia Gerber (Jena/DE)

P14 Post-translational regulation of enzyme activity investigated by protein-protein docking – sexual and parasitic communication of the fungal fusion parasite *Parasitella parasitica*
Sabrina Ellenberger (Jena/DE)

P15 Polynomial parametric modeling of synthetic transcriptional circuits in *S. cerevisiae*
Zhang Wei (Hangzhou/CN)

P16 Emergent network properties and entrainment in the mammalian circadian clock
Christoph Schmal (Berlin/DE)

P17 A collection of mathematical models showing diauxic growth behaviour
Andreas Kremling (Garching/DE)

P18 Enzyme kinetics within our GRASP – a sampling framework for unravelling the feasible dynamic behaviour of metabolic reaction networks
Pedro Saa (Brisbane/AU)

P19 Modelling the glucocorticoid receptor dimerisation cycle
Johann Rohwer (Stellenbosch/ZA)

P20 Modelling the stress response of the mTOR network
Patricia Navas (Oldenburg/DE), Sascha Schäuble (Jena/DE)

P21 Phase shifts and adaptations in glycolytic oscillations
David van Niekerk (Stellenbosch/ZA)

P22 Mathematical analysis of cellular noise during bimodal competence development in *Streptococcus mutans*
Sayuri Hahl (Garching/DE)

P23 Operating regimes and trade-offs in the CAND1-mediated regulation of SCF ligase activity
Ronny Straube (Erlangen/DE)

P24 Facilitation in rat pyramidal neurons can be explained by a single mechanism
Rikard Johansson (Linköping/SE)

P25 Ultra-sensitivity in signal transducing ring assemblies
Shahid Khan (Berkeley, CA/US)

P26 Auto-correlation of high-precision NFkB oscillation data for dynamic mean population models of TNFα signaling
Daniel Kaschek (Freiburg/DE)

P27 A phosphoproteome-wide mechanistic model of insulin signaling
William Lövfors (Linköping/SE)

P29 Synaptic and near-synaptic glycine transport – What is the reason to be different?
Kiril S. Zaytsev (Moscow/RU)

P30 Studying the effects of fructose on hepatocyte metabolism through HepatoDyn
Carles Foguet (Barcelona/ES)

Session 3 – Plant physiology and development

P31 Metabolic balance mediates seed germination – a population wide integrative analysis of the effect of the environment and genetics on the link between seed metabolism and germination
Aaron Fait (Sede Boqer/IL)

P32 Modeling phosphorus uptake of *Chlorella vulgaris*
Ines Hotopp (Düsseldorf/DE)

P33 Modelling metabolism of the diatom *Phaeodactylum tricornutum*
Dipali Singh (Oxford/GB)

P34 Dynamical modelling of the heat shock response in *Chlamydomonas reinhardtii*
Stefano Magni (Düsseldorf/DE)

P35 Generation and experimental validation of the plant immune signalling network
Ziva Ramsak (Ljubljana/Slovenia)

P36 The many routes to blooming as outcomes of a divergent selection experiment for flowering time in maize
Christine Dillmann (Gif sur Yvette/FR)

P37 Characterising maize leaf mechanics through automated fitting of tissue swelling data
Dirk De Vos (Antwerpen/BE)

P38 Modelling of the fast brassinosteroid-regulated response pathway in the plasma membrane of *Arabidopsis thaliana* including cell wall expansion
Ruth Großeholz (Heidelberg/DE)

P39 Genome scale metabolic models of *A. thaliana* and *C. reinhardtii* help to investigate energy dissipation mechanism under supra optimal light conditions
Kailash Adhikari (Oxford/GB)

P40 Modelling carotene desaturation via phytoene desaturase (PDS)
Mirjam Fehling-Kaschek (Freiburg/DE)

P41 The evolutionary footprint in the genes of *Arabidopsis thaliana*
Ovidiu Popa (Düsseldorf/DE)

P42 Dynamical models of glucosinolate metabolism in plants
Suraj Sharma (Düsseldorf/DE)

P43 GemTox – prediction of mixture toxicity using genome scale metabolic models
Alexander Betz (Dübendorf/CH)

Session 4 – Biological thermodynamics

P44 FoF1-ATPsynthase proton transport modeling by quantum-mechanical approach
Elena Mashkovtseva (Moscow/RU)

P45 Design Starch – stochastic modelling of starch granule biogenesis
Adelaide Raguin (Düsseldorf/DE)

P46 Stochastic simulation modeling of proton transport through D-channel in cytochrome c oxydase
Stanislav Boronovskii (Moscow/RU)

P47 Reduction of patient temperature by iced water-gastric cooling: a systems biological approach
Milan Brumen (Maribor/SI)

Session 5 – Optimality principles

P48 A quantitative structural measure for concentration plasticity in metabolism
Anika Kueken (Potsdam-Golm/DE)

P49 Towards robust, high-performance production strains: constrained-based identification of strain designs leading to an optimally growth-coupled product synthesis
Tobias Benedikt Alter (Aachen/DE)

P50 Cells balance enzyme and metabolite concentrations to optimally utilise their compartments
Martin Lercher, Hugo Dourado
Veronica Maurino (Düsseldorf/DE)

P51 A minimal model of phototrophic growth to understand resource allocation in cyanobacteria
Marjan Faizi (Berlin/DE)

P52 Inferring model errors and unmeasured system states with incomplete models – the dynamic elastic net
Maik Kschischo (Remagen/DE)

P53 Why respirofermentation? – explaining the Warburg effect in tumour (and other) cells by a minimal model
Philip Möller (Jena/DE)

P54 How introduce metabolite concentrations in constraint-based modelling – An example with the tomato fruit?
Christine Nazaret (Bordeaux/FR)

P55 Spatial distribution analysis of tree topology in arterial system model
Veronika Kopylova (Moscow/RU)

P56 Model-based optimal control design for algal bioprocesses: a theoretical study
Matthias Reinecke (Jena/DE)

P57 Model-based optimal control design for algal bioprocesses: an experimental study
Tobias Weise (Jena/DE)

Session 6 – Multiscale systems medicine

P58 Zonation of hepatic fat accumulation under a high-fat diet: modeling nutrient gradients and fatty acid uptake
Jana Schleicher (Jena/DE)

P59 Large systems biological models – challenges and solutions
Clemens Kreutz (Freiburg/DE)

P60 Modeling liver volume regeneration with linear elasticity
Daniel Ioan Cazacu (Bremen/DE)

P61 From genome-scale model predictions, via diverse “omics” data to detailed pathway analysis in Refsum’s disease
Agnieszka Wegrzyn (Groningen/NL)

P62 Metabolic reprogramming in tumors by copy number co-alterations of proximal enzyme-coding and cancer-causing genes
Rainer König (Jena/DE)

P63 Why one should prefer to use fractional calculus tools in bioengineering rather than conventional calculus'?
Özlem Öztürk Mızrak (Ankara/TR)

P64 A mathematical model of gallbladder motility
Krystian Kubica (Wroclaw/PL)

P65 Estimating clinical outcomes from a mechanistic model of acute leukemias using decision rules
Dennis Görlich (Münster/DE)

P67 Automatic method to combine three model layers of the cell
Cécile Moulin (Gif-sur-Yvette/FR)

P68 The geometry of a blood vessels bifurcation can affect the level of trophic damages under forming of a brain ischemic lesion
Yaroslav Nartsissov (Moscow/RU)

P69 Model-driven data analysis identification of the metabolic reprogramming associated with prostate epithelial cancer stem cells independent of the EMT programme
Marta Cascante (Barcelona/ES)

Session 7 – Metabolic Pathway Analysis

P70 The amount of organic phosphates (like DPG) existing in blood is determining factor of mammal's bulk
Ramin Amirmardfar (Tabriz/IR)

P71 Wanted: the best models for pathway modeling
Eberhard Voit (Atlanta, GA/US)

P72 sAnalyzer – solution space analyser for metabolic pathway design
Egils Stalidzans, Jurijs Meitalovs (Jelgava/LV)

P73 Carbon labeling experiments – economic design à la carte
Katharina Nöh (Jülich/DE)

P74 Fast minimal network finder
Annika Röhl (Berlin/DE)

P75 Human scale metabolic model(s)
Jean-Pierre Mazat (Bordeaux/FR)

P76 Identification of target knock outs in *Cupriavidus necator* using elementary modes analysis
Nicole Pearcy (Nottingham/GB)

P77 Compartmentalisation and visualisation of metabolic networks
Thomas Pfau (Belvaux/LU)

P78 Predicting compositions of microbial communities from stoichiometric models with applications for the biogas process
Sabine Koch (Magdeburg/DE)

P80 Metabolic pathway analysis in ageing mice
Sarah Stolle (Groningen/NL)

P81 Modelling central carbon metabolism of *Acetobacterium woodii* DSM1030 using a genome-scale metabolic model
Noah Mesfin (Oxford/GB)

P82 Phylogenetic and modelling-based analyses of NAD metabolism: how differential precursor conversion drives signalling
Mathias Bockwoldt, Ines Heiland (Tromsø/NO)

P83 Expediting construction of integrative kinetic models of metabolism with GRaPe
Chuan Fu Yap (Manchester/GB)

P84 Construction and validation of a detailed kinetic model for muscle cell glycolysis
Jacobus van Dyk (Stellenbosch/ZA)

P85 A dynamic metabolic flux analysis of Myeloid-derived suppressor cells involved in the immunosuppression phenomenon
Mario Jolicoeur (Montréal/CA)

P86 Modelling genotype – phenotype relationship – from proteomic data to life-history traits in yeast
Marianyela Sabina Petrizzelli (Gif-sur-Yvette/FR)

P87 Dynamic simulation of stored red blood cells central carbon metabolism
Michel Prudent (Epalinges/CH)

P88 Exact quantification of cellular robustness in genome-scale metabolic networks
Jürgen Zanghellini (Vienna/AT)

P89 Dynamic characterisation of the carbon overflow metabolism in *Yarrowia lipolytica*
Jorgelindo da Veiga Moreira (Palaiseau/FR)

P90 And then there were none – in silico predicted resensitisation of antibiotic resistance populations with metabolite supplementation strategies
Anu Raghunathan (Pune/IN)

P91 Integration of RNAseq data in iFA762 model provides insight into the ectoines metabolism of the halophilic bacteria *Chromohalobacter salexigens*
Francine Amaral (Sevilla/ES)

P92 Systems biology of the modified branched Entner-Doudoroff pathway in *Sulfolobus solfataricus*
Ana Sofia Figueiredo (Magdeburg/DE)

P93 Workflows for fluxomics in the framework of PhenoMeNal project
Pedro de Atauri (Barcelona/ES)

P94 On the history of the Henri-Michaelis-Menten equation
Athel Cornish-Bowden, Jean-Pierre Mazat (Marseilles, Bordeaux/FR)

Session 8 – Late posters

P95 The alliance between intracellular Ca^{2+} dynamics and function in human neutrophils
Katrin Hübner (Heidelberg/DE)

P96 The zonated liver – studying optimality in rodent liver ammonia detoxification
Michael Pfaff (Jena/DE)

P97 isiKnock – a tool for in silico knockouts based on Petri net models
Börje Schweizer, Jennifer Scheidel (Frankfurt am Main/DE)

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