

THE 31<sup>ST</sup>  
INTERNATIONAL  
SYMPOSIUM ON  
LATTICE FIELD THEORY

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**LATTICE**  
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**JULY 29 - AUGUST 03 2013**

**MAINZ, GERMANY**

# IMPRINT

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# WELCOME

## Dear Participant,

The Local Organizing Committee welcomes you to this year's Lattice Symposium, hosted by the Johannes Gutenberg University in Mainz.

As we have a full agenda during this week, please take a few minutes to read through this information booklet. It contains not only the detailed conference schedule, but also a lot of other important and useful information. We hope that you will find the scientific and social programme inspiring and exciting.

## The Local Organizing Committee:

Georg von Hippel, Harvey Meyer, Owe Philipsen, Lorenz von Smekal, Carsten Urbach, Marc Vanderhaeghen, Marc Wagner, Hartmut Wittig

We like to take this opportunity to thank all our sponsors and supporters, the Johannes Gutenberg University, and the International Advisory Committee. Our special thanks go out to the organizing team and the conference office staff, who have taken that extra time out of their busy schedules to help organize this year's conference and make it a success.

# CAMPUS MAP



**1** ReWi I (Lecture Hall & Seminar Rooms)

**2** ReWi II (Seminar Rooms)

**3** Infobox (Conference Office)

**4** Gatehouse (vehicle access)

**5** Kulturcafe / "Baron" Bar & Restaurant

**6** Kebab Shop "Diwan"

**7** University Mensa

**8** Women in Lattice QCD Lunch

**9** Meeting Point (Excursions B, C, D, E)

**10** Guest House „Housekeeper’s Office“

**11** Berno Wischmann House

**12** MPI-P Guest House

**13** Housing Complex K3

vehicle access main access Bus Stop

# GOOD TO KNOW

## Badge

Please always have your badge at hand. It serves both as your ticket for public transportation (MVG) in Mainz and Wiesbaden, and as your admission ticket for the social events you have booked.

## Mensa card

You will need the Mensa card to pay for lunch in the university Mensa. This Mensa card can also be used for payments in the cafeterias or at the Kulturcafé on the campus (see map). The card is charged with €37.50 (enough for 5 lunches). If you wish, you can charge the card with an amount of up to €200 at any of the payment stations located throughout the campus.

We would very much appreciate if at the end of the conference you could return your card to the conference office so that the cards can be recycled in an environmentally-friendly manner.

**NOTE:** The conference office will not be able to refund any balance remaining on your card when you return it. This can only be done at the service desk (open Monday to Friday) in the university Mensa.

## Lunch

You can have lunch at the university Mensa, where a special counter and separate seating area will be available for conference participants. Payment will be possible using the charged Mensa card included in your registration pack (cf. above).

For more information about lunch options, please see [www.lattice2013.uni-mainz.de/117\\_ENG\\_HTML.php](http://www.lattice2013.uni-mainz.de/117_ENG_HTML.php)

## Conference Office

In case of any question or need of assistance, please contact the conference office team. The conference office is located in the „Infobox“ in front of the building “Recht und Wirtschaft I” (ReWi I), see map.

## Internet access

For your access key entitling you to free on-campus WLAN access please see the envelope included in your conference package.

Participants from institutions participating in the eduroam network can also access the internet through their eduroam account from anywhere on campus.

## PARALLEL SESSIONS:

# MONDAY

## 29 JULY 2013

### PLENARY SESSIONS:



**09:00** OPENING

**09:30** **AIDA EL-KHADRA**  
Heavy Flavour Physics Review

**10:15** **STEFAN MEINEL**  
Flavor Physics with  $\Lambda_b$  Baryons

**10:45** **COFFEE BREAK**

**11:15** **CHRISTOF GATTRINGER**  
New Developments for Lattice Field Theory at Non-Zero Density

**12:00** **KÁLMÁN SZABÓ**  
QCD at Non-Zero Temperature and External Magnetic Fields

**12:45** **LUNCH BREAK**

|              | Room A  | Room B  |
|--------------|---|---|
|              |  <b>PARALLELS 1A</b><br>NON-ZERO TEMPERATURE AND DENSITY |  <b>PARALLELS 1B</b><br>THEORETICAL DEVELOPMENTS         |
| 14:00        | <b>Stefan Krieg</b> , Continuum EoS for QCD with $N_f=2+1$ flavors  | <b>Agostino Patella</b> , Space-time symmetries and the Yang-Mills gradient flow  |
| 14:20        | <b>Szabolcs Borsanyi</b> , Freeze-out parameters from continuum extrapolation   | <b>Dirk Hesse</b> , The Schrödinger Functional in Numerical Stochastic Perturbation Theory  |
| 14:40        | <b>Heng-Tong Ding</b> , Chiral phase transition of $N_f=2+1$ QCD with the HISQ action   | <b>Mattia Dalla Brida</b> , Numerical Stochastic Perturbation Theory and the Gradient Flow  |
| 15:00        | <b>Peter Petreczky</b> , Quark number susceptibilities at high temperatures   | <b>Oleg Borisenko</b> , On a development of the phenomenological renormalization group  |
| 15:20        | <b>Mathias Wagner</b> , Charge Fluctuations as Thermometer for Heavy-Ion Collisions   | <b>Tuomas Karavirta</b> , SF boundary conditions and improvement of the SU(N) pure gauge action for $N>3$                                   |
| 15:40        | <b>Chris Schroeder</b> , The QCD Phase Transition with Domain Wall Fermions and Physical Pion Masses                                      | <b>Yannick Meurice</b> , Comparing Tensor Renormalization Group and Monte Carlo calculations for spin and gauge models                      |
| COFFEE BREAK |   |   |
|              |  <b>PARALLELS 2A</b><br>NON-ZERO TEMPERATURE AND DENSITY |  <b>PARALLELS 2B</b><br>NON-ZERO TEMPERATURE AND DENSITY |
| 16:30        | <b>Marco Panero</b> , Momentum broadening of partons on the light cone from the lattice   | <b>Michael Ogilvie</b> , The sign problem and Abelian lattice duality   |
| 16:50        | <b>Alexander Rothkopf</b> , Towards understanding thermal jet quenching via lattice simulations   | <b>Thomas Kloiber</b> , Dual Methods for Lattice Field Theories at Finite Density   |
| 17:10        | <b>Olaf Kaczmarek</b> , T-dependence of electrical conductivity and dilepton rates from hot quenched lattice QCD                          | <b>Keitaro Nagata</b> , A property of fermions at finite density by a reduction formula of fermion determinant                              |
| 17:30        | <b>Alessandro Amato</b> , Transport Coefficients of the QGP   | <b>Andrei Alexandru</b> , QCD at imaginary chemical potential with Wilson fermions  |
| 17:50        | <b>Christian Schäfer</b> , Lattice computation of the transport coefficient kappa in pure Yang-Mills theory                               | <b>Christopher Pinke</b> , The nature of the Roberge-Weiss transition in $N_f=2$ QCD with Wilson fermions                                   |
| 18:10        | <b>Daniil Gelfand</b> , Non-Equilibrium Fermion Production on the Lattice   | <b>Hiroshi Yoneyama</b> , Singularities around the QCD critical point in the complex chemical potential plane                               |
| 18:30        | <b>Pavel Buividovich</b> , Towards lattice studies of anomalous transport   | <b>Chiho Nonaka</b> , Lattice QCD at finite isospin chemical potential  |
| 18:50        |   | <b>Thomas Schaefer</b> , Continuity of the Deconfinement Transition in (Super) Yang Mills Theory  |



| Room C  | Room D   | Room E  | Room F  | Room G  |
|---|--|---|---|---|
|  <b>PARALLELS 1C</b><br>SM PARAMETERS AND RENORMALIZATION |  <b>PARALLELS 1D</b><br>ALGORITHMS AND MACHINES |  <b>PARALLELS 1E</b><br>VACUUM STRUCTURE AND CONFINEMENT |  <b>PARALLELS 1F</b><br>PHYSICS BEYOND THE STANDARD MODEL |  <b>PARALLELS 1G</b><br>HADRON SPECTROSCOPY AND INTERACTIONS |
| <b>Marina Marinkovic</b> , Computation of the strong coupling in $N_f=4$ QCD  | <b>Nikhil Karthik</b> , UV suppression by smearing and screening correlators   | <b>Giuseppe Burgio</b> , Confinement in Coulomb gauge   | <b>Masaaki Tomii</b> , Lattice study on chiral dynamics of two-color six-flavors QCD  | <b>Takumi Doi</b> , Cutoff effects on lattice nuclear forces  |
| <b>Patrick Fritsch</b> , Studying the gradient flow coupling in the SF  | <b>Ken-Ichi Ishikawa</b> , Testing reweighting method for truncated Overlap fermions   | <b>Hannes Vogt</b> , Coulomb gauge on the lattice: From zero to finite temperature  | <b>Gennady Voronov</b> , Two-Color Schrödinger Functional with Six-Flavors of Stout-Smeared Wilson Fermions                                 | <b>Jana Günther</b> , Correlation functions of atomic nuclei in Lattice QCD I   |
| <b>Harvey Meyer</b> , Vector correlator and scale determination in lattice QCD  | <b>Greg McGlynn</b> , Scaling, topological tunneling and actions for weak coupling DWF calculations                              | <b>Markus Huber</b> , On two- and three-point functions of Landau gauge Yang-Mills theory   | <b>Hiroshi Ohki</b> , Exploring for a light composite scalar in eight flavor QCD  | <b>Lukas Varnhorst</b> , Correlation functions of atomic nuclei in Lattice QCD II   |
| <b>Mattia Bruno</b> , On the $N_f$ -dependence of gluonic observables   | <b>Matthias Rottmann</b> , Adaptive Aggregation Based Domain Decomposition Multigrid for the Wilson-Dirac Operator               | <b>Paulo Silva</b> , Spectral densities from the lattice  | <b>Kei-ichi Nagai</b> , Walking signals in $N_f=8$ QCD on the lattice   | <b>Takashi Inoue</b> , Equation of State of Nucleon Matters from Lattice QCD Simulations  |
| <b>Francesco Di Renzo</b> , Finite size effects in lattice RI-MOM   | <b>Peter Boyle</b> , HDCG: Hierarchically Deflated Conjugate Gradient algorithm for 5d Chiral Fermions                           | <b>Attilio Cucchieri</b> , Crossing the Gribov horizon: geometric properties of gauge-configuration space in Landau gauge                 | <b>David Schaich</b> , Eight light flavors on large lattice volumes   | <b>Akira Ukawa</b> , Multi-nucleon bound states in $N_f=2+1$ lattice QCD  |
| <b>Daniel Robaina</b> , Renormalization of the momentum density on the lattice using shifted boundary conditions                          | <b>Yong-Chull Jang</b> , Optimization of the Oktay-Kronfeld Action Conjugate Gradient Inverter                                   | <b>Pedro Bicudo</b> , Gluon mass at finite temperature in Landau gauge  | <b>Enrico Rinaldi</b> , Gluonic observables and the scalar spectrum of twelve-flavour QCD   | <b>Timo Laehde</b> , Lattice effective field theory for nuclei from $A = 4$ to $A = 28$   |
| COFFEE BREAK  |  |   |   |   |
|  <b>PARALLELS 2C</b><br>HADRON STRUCTURE                  |  <b>PARALLELS 2D</b><br>ALGORITHMS AND MACHINES |  <b>PARALLELS 2E</b><br>VACUUM STRUCTURE AND CONFINEMENT |  <b>PARALLELS 2F</b><br>PHYSICS BEYOND THE STANDARD MODEL |  <b>PARALLELS 2G</b><br>HADRON SPECTROSCOPY AND INTERACTIONS |
| <b>Jonna Koponen</b> , Pion electromagnetic form factor from full lattice QCD   | <b>Björn Leder</b> , One flavor mass reweighting: foundations  | <b>Giancarlo Rossi</b> , qq-potential   | <b>Axel Maas</b> , Higgs Sector Spectroscopy  | <b>Junichi Noaki</b> , Fine lattice simulations with chirally symmetric fermions  |
| <b>Vera Guelpers</b> , The scalar radius of the pion in two-flavor Wilson lattice QCD   | <b>Jacob Finkenrath</b> , Towards Simulations of 1+1 Flavor QCD  | <b>Marc Wagner</b> , Colour adjoint static potential from Wilson loops with generator insertions  | <b>Bastian Knippschild</b> , The phase structure of a chirally-invariant Higgs-Yukawa model   | <b>Bartosz Kostrzewa</b> , Preliminary results from maximally twisted mass lattice QCD at the physical point                                    |
| <b>Michael Engelhardt</b> , Lattice study of the Boer-Mulders transverse momentum distribution in the pion                                | <b>Yu-Chih Chen</b> , Exact Pseudofermion Action for Hybrid Monte Carlo Simulation of One-Flavor DWF                             | <b>Antonio Pineda</b> , The static quark self-energy and the Plaquette at large orders in perturbation theory                             | <b>Attila Nagy</b> , Stabilizing the electro-weak vacuum by higher dimensional operators in a Higgs-Yukawa model                            | <b>Colin Morningstar</b> , Spectrum of excited states using the stochastic LapH method  |
| <b>Ekaterina Mastropas</b> , Lattice study of quark distribution amplitudes in the pion and its excitations                               | <b>Tomasz Korzec</b> , Simulating the Random Surface representation of Abelian Gauge Theories                                    | <b>Michele Caselle</b> , Recent progress in the effective string theory description of LGTs   | <b>Mark Wurtz</b> , Multi-boson spectrum of the SU(2)-Higgs model   | <b>Antonin Portelli</b> , Isospin breaking effect from lattice QCD and QED  |
| <b>Scott Moerschbacher</b> , Magnetic polarizability of hadrons in the background field method  | <b>Ulli Wolff</b> , Simulated random surfaces and effective string models in 3d Z(2) gauge theory                                | <b>Daive Vadacchino</b> , Fine structure of the confining string in an analytically solvable 3D model                                     | <b>Kyoko Yoneyama</b> , Progress in Gauge-Higgs Unification on the Lattice (I)  | <b>Shane Drury</b> , Non-degenerate light quark masses from electromagnetic mass splittings in 2+1 flavour lattice QCD+QED                      |
| <b>Michael Lujan</b> , Electric Polarizability of hadrons with nHYP-Clover fermions   | <b>Andreas Ammon</b> , Applicability of Quasi-Monte Carlo for lattice systems  | <b>Hideo Suganuma</b> , Analytical relation between Polyakov loop and Dirac eigenvalues in temporally odd-number LQCD                     | <b>Francesco Knechtli</b> , Progress in Gauge-Higgs Unification on the Lattice (II)   | <b>Nathan Brown</b> , Symanzik flow on HISQ ensembles   |
| <b>Walter Freeman</b> , Sea Contributions to the Electric Polarizability of Hadrons using Reweighting                                     | <b>Gennaro Cortese</b> , 2D and 3D Antiferromagnetic Ising Model with "topological" term at $\theta=\pi$                         | <b>Takahiro Doi</b> , Direct relation between confinement and chiral symmetry breaking in temporally odd-number LQCD                      | <b>Chik Him Wong</b> , Can a light Higgs impostor hide in composite gauge models?   |   |
|   | <b>Massimo Di Pietro</b> , QCL: OpenCL meta programming for lattice QCD  | <b>Takumi Iritani</b> , Analysis of topological structure of the QCD vacuum with overlap-Dirac operator eigenmode                         |   |   |

## PARALLEL SESSIONS:

# TUESDAY

## 30 JULY 2013

### PLENARY SESSIONS:



**09:00** **MARTIN LÜSCHER**  
Future Applications of the Yang-Mills Gradient Flow in Lattice QCD

**09:30** **BENNI REZNIK**  
Quantum Simulations of Lattice Gauge Theories with ultra-cold Atoms

**10:30** **COFFEE BREAK**

**11:00** **RAINER SOMMER**  
Scale Setting in Lattice QCD

**11:30** **NAZARIO TANTALO**  
Isospin Breaking Effects in Lattice QCD





**12:00** **XU FENG**  
Neutral Pion Decay and the U(1) Anomaly

**12:30** **LUNCH BREAK**


|       | Room A   | Room B   |
|-------|--|--|
|       | <b>PARALLELS 3A</b><br>NON-ZERO TEMPERATURE AND DENSITY  | <b>PARALLELS 3B</b><br>HADRON STRUCTURE  |
| 14:00 | <b>Yu Maezawa</b> , Meson screening masses at finite temperature with Highly Improved Staggered Quarks   | <b>Christian Wiese</b> , Looking at the gluon moment of the nucleon with dynamical twisted mass fermions |
| 14:20 | <b>Marcel Müller</b> , The thermodynamic and continuum limit of meson screening masses   | <b>Sara Collins</b> , Moments of structure functions for $N_f=2$ near the physical point                 |
| 14:40 | <b>Chris Allton</b> , 2+1 flavour thermal studies on an anisotropic lattice  | <b>Andre Sternbeck</b> , Nucleon generalized form factors from lattice QCD near the physical quark mass  |
| 15:00 | <b>Christian Schmidt</b> , The strange degrees of freedom in QCD at high temperature   | <b>Constantia Alexandrou</b> , Nucleon structure with twisted mass fermions                              |
| 15:20 | <b>Florian Burger</b> , Thermodynamics with $N_f=2+1+1$ twisted mass quarks  | <b>Huey-Wen Lin</b> , Calculating the x Dependence of Nucleon Parton Distribution Functions              |
| 15:40 | <b>Alexei Bazavov</b> , Update on the 2+1+1 flavor QCD equation of state with HISQ   | <b>Martha Constantinou</b> , Nucleon transversity generalized form factors with twisted mass fermions    |
|       | COFFEE BREAK   |  |
|       | <b>PARALLELS 4A</b><br>NON-ZERO TEMPERATURE AND DENSITY  | <b>PARALLELS 4B</b><br>HADRON STRUCTURE  |
| 16:20 | <b>Philippe de Forcrand</b> , Scale hierarchy in high-temperature QCD  | <b>Vincent Drach</b> , The quark contents of the nucleon and their implication for dark matter search    |
| 16:40 | <b>Robert Lohmayer</b> , Many-flavor Schwinger model at finite chemical potential  | <b>Ming Gong</b> , Strange and Charm Spin in the Nucleon with Overlap Fermion                            |
| 17:00 | <b>Shinji Ejiri</b> , Nature of finite temperature and density phase transitions in many-flavor QCD  | <b>Rainer Schiel</b> , Wave functions of the Nucleon and the $N^*(1535)$                                 |
| 17:20 | <b>Alexander Schmidt</b> , Solving the sign problem of scalar, two-flavored electrodynamics for finite chemical potential and exploring its full phase-diagram | <b>Eigo Shintani</b> , Neutron and proton EDM with $N_f=2+1$ domain-wall fermion                         |
| 17:40 | <b>Ydalia Delgado</b> , Surface worm algorithm for Abelian Gauge-Higgs systems at finite density   | <b>Tanmoy Bhattacharya</b> , Neutron Electric Dipole Moments from Beyond the Standard Model Physics      |
| 18:00 | POSTER SESSION   |  |





| Room C   | Room D | Room E  | Room F  | Room G  |
|--|--------|---|---|---|
|  <b>PARALLELS 3C</b><br>WEAK DECAYS AND MATRIX ELEMENTS  |        |  <b>PARALLELS 3E</b><br>VACUUM STRUCTURE AND CONFINEMENT |  <b>PARALLELS 3F</b><br>PHYSICS BEYOND THE STANDARD MODEL |  <b>PARALLELS 3G</b><br>HADRON SPECTROSCOPY AND INTERACTIONS |
| <b>Oliver Witzel</b> , Chiral and continuum extrapolation of B-meson decay constants computed using domain-wall light quarks and nonperturbatively tuned relativistic b-quarks |        | <b>Akihiro Shibata</b> , Non-Abelian dual Meissner effect and confinement/deconfinement phase transition in SU(3) Yang-Mills theory       | <b>Kohtaroh Miura</b> , String tension vs critical temperature in walking regime  | <b>Maxwell Hansen</b> , A relativistic, model-independent, three-particle quantization condition: (I) Derivation                                |
| <b>Taichi Kawanai</b> , The form factor for B to $\pi$ semileptonic decay from 2+1 flavors of domain-wall fermions   |        | <b>Vitaly Borynkov</b> , Study of thermal monopoles in lattice QCD  | <b>Anna Hasenfratz</b> , Finite size scaling and the effect of the gauge coupling in 12 flavor systems                                      | <b>Stephen Sharpe</b> , A relativistic, model-independent, three-particle quantization condition: (II) Threshold expansion                      |
| <b>Christoph Lehner</b> , A new computer algebra system for (lattice) perturbation theory and the RBC/UKQCD heavy quark physics program  |        | <b>Alexander Molochkov</b> , Surface operator study in an SU(2) gauge field theory  | <b>Kenji Ogawa</b> , Step Scaling Study of SU(3) 12 Flavor Theory with Larger Lattice   | <b>Sinya Aoki</b> , Extension of the HAL QCD approach to inelastic and multi-particle scatterings in lattice QCD                                |
| <b>Piotr Korcyl</b> , On one-loop corrections to the matching conditions of Lattice HQET including $1/\text{mb}$ terms   |        | <b>Marco Mariti</b> , Effective theta term by CP-odd electromagnetic background fields  | <b>Takeshi Yamazaki</b> , Composite flavor-singlet scalar in twelve-flavor QCD  | <b>Bruno Charron</b> , A comparative study of two lattice approaches to two-body systems  |
| <b>Fabio Bernardoni</b> , B-physics with $N_f=2$ Wilson fermions   |        | <b>Philipp Scior</b> , Fractional Charge and Confinement of Quarks  | <b>Yuzhi Liu</b> , Fisher's zeros for SU(3) with $N_f$ flavors and RG flows   | <b>Thorsten Kurth</b> , Phase shifts in $l=2$ $\pi\pi$ -scattering from two lattice approaches  |
| <b>Petros Dimopoulos</b> , B-physics computations from $N_f=2$ tmQCD   |        | <b>Andrey Kotov</b> , Vortex liquid in superconducting vacuum of QCD induced by strong magnetic field                                     | <b>Gregory Petropoulos</b> , Improved Lattice Renormalization Group Techniques  | <b>Raul Briceno</b> , Two-Nucleon Systems in a Finite Volume  |

COFFEE BREAK

|  |   |  |  |   |
|--|---|--|--|---|
|  <b>PARALLELS 4C</b><br>WEAK DECAYS AND MATRIX ELEMENTS |  <b>PARALLELS 4D</b><br>CHIRAL SYMMETRY |  <b>PARALLELS 4E</b><br>THEORETICAL DEVELOPMENTS |  <b>PARALLELS 4F</b><br>PHYSICS BEYOND THE STANDARD MODEL |  <b>PARALLELS 4G</b><br>ALGORITHMS AND MACHINES |
| <b>Benoit Blossier</b> , B decay to radially excited D   | <b>Stefano Capitani</b> , New actions for minimally doubled fermions and their counterterms                               | <b>Peter Orland</b> , Subtleties of simulating gauge theories with atomic lattices   | <b>Donald Sinclair</b> , Further studies of QCD with sextet quarks   | <b>Pushan Majumdar</b> , Lattice Simulations using OpenACC compilers  |
| <b>Ben Samways</b> , The $B^*B\pi$ coupling with relativistic heavy quarks   | <b>Johannes Weber</b> , Numerical studies of Minimally Doubled Fermions   | <b>Michael Bögli</b> , Quantum Simulation of Non Abelian Lattice Gauge Theories  | <b>Yigal Shamir</b> , Gauge theories with fermions in two-index representations  | <b>Matthias Bach</b> , Twisted-Mass Lattice QCD using OpenCL  |
| <b>Rajan Gupta</b> , Probing TeV scale physics in precision UCN decays   | <b>Hideo Matsufuru</b> , Lattice simulation of SU(2) gauge theory with chirally symmetric fermions                        | <b>Mari Carmen Banuls</b> , Matrix Product States for Lattice Field Theories   | <b>Stefano Piemonte</b> , Clover fermions in the adjoint representation and simulations of supersymmetric Yang-Mills theory                  | <b>Frank Winter</b> , QDP-JIT: A QDP++ Implementation for CUDA-Enabled GPUs   |
| <b>Tomomi Ishikawa</b> , Neutral B meson mixing with static heavy and domain-wall light quarks   | <b>Bjoern Walk</b> , Lattice QCD with overlap fermions  | <b>Debasish Banerjee</b> , Crystalline confinement   | <b>Andreas Athenodorou</b> , First results for SU(2) Yang-Mills with one adjoint Dirac Fermion   | <b>M Clark</b> , Adaptive Multigrid Algorithms on GPUs  |
|  | <b>Takashi Kaneko</b> , Large-scale simulations with chiral symmetry  | <b>Philippe Widmer</b> , Emergence of a pseudo-Goldstone Boson in a (2+1)-d U(1) pure gauge theory                                 | <b>Luigi Del Debbio</b> , Large volume results in SU(2) with adjoint fermions  |   |

POSTER SESSION

# TUESDAY

## 30 JULY 2013

## POSTER SESSION

|    |   |    |  |
|----|---|----|--|
| 1  | <b>Boram Yoon</b> , Lattice calculation of BSM B-parameters using improved staggered fermions in $N_f=2+1$ unquenched QCD | 21 | <b>Olga Larina</b> , Rho and A-mesons in external magnetic field in SU(2) lattice gauge theory   |
| 2  | <b>Naruhito Ishizuka</b> , Calculations of $K \rightarrow \pi\pi$ decay amplitude with improved Wilson fermion            | 22 | <b>Raza Sufian</b> , The Oscillatory Behavior and The Logarithmic Unphysical Pole of the Domain Wall Fermion                                     |
| 3  | <b>Jochen Heitger</b> , Charm quark mass and D-meson decay constants from two-flavour lattice QCD                         | 23 | <b>William M. Serenone</b> , SU(2) Lattice Gluon Propagator and Potential Models   |
| 4  | <b>Weonjong Lee</b> , Recent update on BK and $\epsilon_\kappa$ with staggered quarks                                     | 24 | <b>Chuan Liu</b> , Glueballs in charmonia radiative decays   |
| 5  | <b>Chia Cheng Chang</b> , Matrix elements for D- and B-Mixing from 2+1 flavor lattice QCD                                 | 25 | <b>Jon Bailey</b> , Flavored pion and kaon masses at next-to-leading order in mixed-action staggered chiral perturbation theory                  |
| 6  | <b>Ciaran Hughes</b> , Radiative Decays in Non-Relativistic QCD   | 26 | <b>Christian Jost</b> , Testing the stochastic LapH method in the twisted mass formulation   |
| 7  | <b>Ashley Cooke</b> , Flavour Symmetry Breaking in Octet Hyperon Matrix Elements  | 27 | <b>Christine Davies</b> , Bottomonium results from lattice QCD   |
| 8  | <b>Shoji Hashimoto</b> , Residual mass in five-dimensional fermion formulations   | 28 | <b>Tom Blum</b> , Hadronic light-by-light contribution to the muon $g-2$ with charged sea quarks   |
| 9  | <b>Wolfgang Bietenholz</b> , Spectral Properties of a 2d IR Conformal Theory  | 29 | <b>Chuan Miao</b> , Two-Baryon Correlation Functions in 2-flavor QCD   |
| 10 | <b>John Bulava</b> , A determination of the Wilson Chiral effective theory constant $c_2$ using $n_f=2$ CLS lattices      | 30 | <b>Joshua Berlin</b> , Testing mixed action approaches to meson spectroscopy with twisted mass sea quarks  |
| 11 | <b>Etsuko Itou</b> , The anomalous dimension at the infrared fixed point of $N_f=12$ SU(3) theory                         | 31 | <b>Falk Zimmermann</b> , Investigating a mixed action approach for $\eta$ and $\eta'$ mesons in $N_f=2+1+1$ lattice QCD                          |
| 12 | <b>Gernot Münster</b> , $N=1$ supersymmetric Yang-Mills theory on the lattice   | 32 | <b>Eigo Shintani</b> , Vacuum polarization function in $N_f=2+1$ domain-wall fermion   |
| 13 | <b>Daniel Körner</b> , Finetuning the continuum limit in low-dimensional supersymmetric theories                          | 33 | <b>Chik Him Wong</b> , Meson Spectroscopy using Stochastic LapH Method   |
| 14 | <b>Meifeng Lin</b> , Lattice simulations with eight flavors of domain wall fermions in SU(3) gauge theory                 | 34 | <b>Ting-Wai Chiu</b> , Pseudoscalar Decay Constants of D-Mesons in Lattice QCD with Domain-Wall Fermion  |
| 15 | <b>Kostas Orginos</b> , Finite volume renormalization scheme for fermionic operators                                      | 35 | <b>Yibo Yang</b> , Charmonium, $D_s$ and $D_s^*$ from overlap fermion on domain wall fermion configurations                                      |
| 16 | <b>Gregorio Herdoiza</b> , Fitting the lattice vacuum polarisation function to perturbation theory                        | 36 | <b>Karthee Sivalingam</b> , DWF Solvers and Clover for BGQ   |
| 17 | <b>Mingyang Sun</b> , First and second moments of the disconnected sea partons from overlap fermion on DWF configurations | 37 | <b>Hwancheol Jeong</b> , Performance of Kepler GTX Titan GPUs and Xeon Phi system  |
| 18 | <b>Jiayu Hua</b> , Fitting strategies to extract the axial charge of the nucleon from lattice QCD                         | 38 | <b>Georg von Hippel</b> , Getting Covariantly Smeared Sources into Better Shape  |
| 19 | <b>Narjes Javadi-Motaghi</b> , Pion structure from lattice QCD  | 39 | <b>Stefan Schaefer</b> , The openQCD code  |
| 20 | <b>Xu Feng</b> , Time-like pion form factor in lattice QCD  | 40 | <b>Hidekatsu Nemura</b> , An implementation of hybrid parallel C++ code for the four-point correlation function of various baryon-baryon systems |







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| 41 | <b>Massimo Di Piero</b> , The new „Gauge Connection“ at NERSC   |
| 42 | <b>Guido Cossu</b> , JLQCD Irolo++ lattice code on BG/Q   |
| 43 | <b>Marios Costa</b> , Perturbative renormalization of staggered fermion operators with stout improvement: Application to the magnetic susceptibility of QCD |
| 44 | <b>Jakob Simeth</b> , Quantifying Discretization Errors for the Gluon and Ghost Propagators using Stochastic Perturbation Theory                            |
| 45 | <b>Julien Frison</b> , The Kaon Bag Parameter at Physical Mass  |
| 46 | <b>Felix Stollenwerk</b> , Critical slowing down and the gradient flow coupling in the Schrödinger functional   |
| 47 | <b>Olga Goulko</b> , The unitary Fermi gas on the lattice   |
| 48 | <b>Helvio Vairinhos</b> , Confinement in deformed Yang-Mills theories   |
| 49 | <b>Tomomi Sato</b> , More about vacuum structure of Linear Sigma Model  |
| 50 | <b>Timo Laehde</b> , Velocity renormalization in graphene from lattice Monte Carlo  |
| 51 | <b>Gerrit Schierholz</b> , Dynamical 2+1 flavor QCD + QED   |
| 52 | <b>Eva Grünwald</b> , Taylor- and fugacity expansion for the effective center model of QCD at finite density  |
| 53 | <b>Lorenzo Bongiovanni</b> , Adaptive gauge cooling for complex Langevin dynamics   |
| 54 | <b>Takashi Umeda</b> , Scaling properties of the chiral phase transition in the low density region of two-flavor QCD with improved Wilson fermions          |
| 55 | <b>Ion-Olimpiu Stamatescu</b> , Complex Langevin simulation for QCD-like models   |
| 56 | <b>Max Wilfling</b> , A test of fugacity-, Taylor- and improved Taylor-expansion  |
| 57 | <b>Thomas Neuhaus</b> , Towards the Continuum Limit in Transport Coefficient Computations   |
| 58 | <b>Michael Muller-Preussker</b> , Landau gauge gluon and ghost propagators from two-flavour lattice QCD at nonzero temperature                              |
| 59 | <b>Akira Ohnishi</b> , Finite coupling and fluctuation effects on the QCD phase diagram at strong coupling  |
| 60 | <b>Tereza Mendes</b> , Systematic Effects at Criticality for the SU(2)-Landau-Gauge Gluon Propagator  |

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| 61 | <b>Ralf-Arno Tripolt</b> , Finite-Temperature Spectral Functions from the Functional Renormalization Group                           |
| 62 | <b>Leonardo Giusti</b> , Measuring the entropy from shifted boundary conditions  |
| 63 | <b>Alexander Rothkopf</b> , A new Bayesian approach to the reconstruction of spectral functions                                      |
| 64 | <b>Yannis Burnier</b> , Benchmarking the Bayesian reconstruction of the non-perturbative heavy $Q\bar{Q}$ potential                  |
| 65 | <b>Pietro Giudice</b> , Electric charge susceptibility in 2+1 QCD on an anisotropic lattice  |
| 66 | <b>Reetabrata Har</b> , Continuum limit of the index of the staggered Wilson Dirac operator  |
| 67 | <b>Alessandro Papa</b> , Critical properties of 3D Z(N) lattice gauge theories at finite temperature                                 |
| 68 | <b>Karl Jansen</b> , A method of analytic continuation for computing the hadronic vacuum polarization function                       |
| 69 | <b>Christopher Czaban</b> , Lattice study of the Schwinger model at fixed topology   |
| 70 | <b>Tajdar Mufti</b> , Correlation functions and confinement in scalar QCD  |
| 71 | <b>Stefan Olejnik</b> , Measuring the ground-state wave functional of SU(2) Yang-Mills theory in 3+1 dimensions: Abelian plane waves |
| 72 | <b>Francesca Cuteri</b> , Flux tubes and coherence length in the SU(3) vacuum  |
| 73 | <b>Yoshiaki Koma</b> , The static potential from the selected intermediate states of gluons  |
| 74 | <b>Andrea Guerrieri</b> , Classification of quark-antiquark sources in Yang-Mills Theories   |
| 75 | <b>Nigel Cundy</b> , Confinement From The Gauge Invariant Abelian Decomposition  |
| 76 | <b>Igor Bogolubsky</b> , Towards the continuum limit of SU(2) Landau gauge gluodynamics  |
| 77 | <b>Giuseppe Burgio</b> , 't Hooft loop and the phases of SU(2) lattice gauge theory  |
| 78 | <b>Andreas Athenodorou</b> , Stable and Quasi-Stable confining SU(N) strings in D=2+1  |
| 79 | <b>Pedro Bicudo</b> , SU(3) quark-antiquark QCD flux tube  |
| 80 | <b>David Weir</b> , Form factor and width of a quantum string  |

## PARALLEL SESSIONS:

# WEDNESDAY

## 31 JULY 2013

|              | Room A  | Room B   |
|--------------|---|--|
|              |  <b>PARALLELS 5A</b><br>NON-ZERO TEMPERATURE<br>AND DENSITY |  <b>PARALLELS 5B</b><br>NON-ZERO TEMPERATURE<br>AND DENSITY |
| 08:30        | <b>Denes Sexty</b> , Simulating full QCD at nonzero density using The Complex Langevin Equation   | <b>Falk Bruckmann</b> , Magnetic-field induced (inverse) catalysis for gluons through an improved interaction measure                          |
| 08:50        | <b>Pietro Giudice</b> , Localised distributions in complex Langevin dynamics  | <b>Tamas G. Kovacs</b> , Inverse magnetic catalysis in QCD   |
| 09:10        | <b>Rajiv V. Gavai</b> , Towards Continuum Limit for the QCD Critical Point  | <b>Gergely Endrodi</b> , Magnetization and pressures at nonzero magnetic fields in QCD   |
| 09:30        | <b>Sourendu Gupta</b> , Controlling errors in simulations for QCD at finite chemical potential  | <b>Carleton DeTar</b> , The quark-gluon plasma in an external magnetic field   |
| 09:50        | <b>Shinji Takeda</b> , Finite size scaling for 3 and 4-flavor QCD with finite chemical potential  | <b>Claudio Bonati</b> , The magnetic susceptibility in QCD   |
| 10:10        | <b>Xiao-Yong Jin</b> , Results from combining ensembles at several values of chemical potential   | <b>Tin Sulejmanpasic</b> , Electric charge catalysis by magnetic fields and a nontrivial holonomy  |
| COFFEE BREAK |   |  |
|              |  <b>PARALLELS 6A</b><br>NON-ZERO TEMPERATURE<br>AND DENSITY |  <b>PARALLELS 6B</b><br>NON-ZERO TEMPERATURE<br>AND DENSITY |
| 11:00        | <b>Jeff Greensite</b> , Effective Polyakov line actions via the relative weights method   | <b>Ferenc Pittler</b> , Quark localization in QCD above $T_c$  |
| 11:20        | <b>Georg Bergner</b> , Effective lattice theory for finite temperature Yang Mills   | <b>Matteo Giordano</b> , Critical behaviour in the QCD Anderson transition   |
| 11:40        | <b>Hans-Peter Schadler</b> , Local Polyakov loop domains and their fractality   | <b>Leonardo Giusti</b> , Thermal field theories and shifted boundary conditions  |
| 12:00        | <b>Francesco Negro</b> , Deconfinement and theta dependence in $SU(N)$ Yang-Mills theories  | <b>Roberto Pellegrini</b> , Finite temperature behaviour of glueballs in Lattice Gauge Theories  |
| 12:20        | <b>Ettore Vicari</b> , Theta dependence of 4D $SU(N)$ gauge theories at finite temperature  | <b>Atsushi Nakamura</b> , Pursuing QCD Phase Transition with Lattice QCD and Experimental Data   |
| 12:40        | <b>Takahiro Sasaki</b> , Practical approach to the sign problem at finite theta-vacuum angle  |  |
| LUNCH BREAK  |   |  |
| 14:00        | EXCURSIONS  |  |



| Room C  | Room D   | Room E  | Room F  | Room G  |
|---|--|---|---|---|
|  <b>PARALLELS 5C</b><br>SM PARAMETERS AND RENORMALIZATION       |  <b>PARALLELS 5D</b><br>CHIRAL SYMMETRY |  <b>PARALLELS 5E</b><br>APPLICATIONS BEYOND QCD                              |  <b>PARALLELS 5F</b><br>PHYSICS BEYOND THE STANDARD MODEL |  <b>PARALLELS 5G</b><br>HADRON SPECTROSCOPY AND INTERACTIONS         |
| <b>Kim Maltman</b> , Combined Lattice and Continuum Analysis of the Light Quark V–A Correlator at NNLO in ChPT                                  | <b>Oliver Bär</b> , The kaon mass in 2+1+1 flavor twisted mass Wilson ChPT   | <b>Mikhail Polikarpov</b> , Graphene simulation on rectangular and hexagonal lattice  | <b>Terry Tomboulis</b> , Conformality at large number of fermion flavors and composite Higgs  | <b>Liuming Liu</b> , Interactions of Charmed Mesons with Light Pseudoscalar Mesons from Lattice QCD and Implications on the Nature of the $D_s^*(2317)$ |
| <b>Zhaofeng Liu</b> , Non-perturbative renormalization of overlap quark bilinears on domain wall fermion configurations                         | <b>Andreas Schäfer</b> , Applications of SU(3) ChPT including lattice data close to the SU(3) symmetric point            | <b>Maksim Ulybyshev</b> , Monte-Carlo study of semimetal-insulator phase transition in monolayer graphene with realistic inter-electron interaction potential | <b>Norikazu Yamada</b> , Search for the end point of first order phase transition in many-flavor lattice QCD                                | <b>Daniel Mohler</b> , D K scattering and the $D_s$ spectrum  |
| <b>Jangho Kim</b> , NPR of bilinear operators with improved staggered quarks  | <b>Akaki Rusetsky</b> , Partially twisted boundary conditions for scalar mesons  | <b>Victor Braguta</b> , Interaction of static charges in graphene within Monte-Carlo simulation   | <b>Tiago Jose Nunes da Silva</b> , More results on theories inside the conformal window   | <b>Martin Kalinowski</b> , Twisted mass lattice computation of charmed mesons with focus on $D_s^{**}$  |
| <b>Bipasha Chakraborty</b> , Nonperturbative tests of the renormalisation of mixed clover-staggered currents in lattice QCD                     | <b>Johan Bijmans</b> , Sunset integrals at finite volume   | <b>Oleg Pavlovsky</b> , Lattice version of effective graphene field theory in terms of occupation numbers   | <b>Yasumichi Aoki</b> , Vector and axialvector currents in multi-species staggered fermions   | <b>Graham Moir</b> , Excited spectroscopy of mesons containing charm quarks from lattice QCD  |
| <b>Holger Perlt</b> , Perturbatively improving renormalization constants  | <b>Brian Tiburzi</b> , Chiral Symmetry Restoration from a Boundary   | <b>Dominik Smith</b> , Tight-binding model of graphene with Coulomb interactions  | <b>Jarno Rantaharju</b> , The Gradient Flow Coupling in Minimal Walking Technicolor   | <b>Nilmani Mathur</b> , Hadron spectra from overlap fermions on HISQ gauge configurations   |
| <b>Christian Witteameier</b> , Determination of $\alpha$ in three-flavour lattice QCD with Wilson fermions and tree-level improved gauge action | <b>Takashi Suzuki</b> , Finite volume scaling of the electro-magnetic pion form factor in the epsilon regime             | <b>Shailesh Chandrasekharan</b> , Quantum Critical Behavior with massless Staggered fermions in Three Dimensions  | <b>Yoichi Iwasaki</b> , Toward the Global Structure of Conformal Theories in the SU(3) Gauge Theory   | <b>Elena Lushchetskaya</b> , Rho - meson in external magnetic field   |
| COFFEE BREAK  |  |   |   |   |
|  <b>PARALLELS 6C</b><br>WEAK DECAYS AND MATRIX ELEMENTS         |  |  <b>PARALLELS 6E</b><br>APPLICATIONS BEYOND QCD                              |  <b>PARALLELS 6F</b><br>PHYSICS BEYOND THE STANDARD MODEL |  <b>PARALLELS 6G</b><br>HADRON SPECTROSCOPY AND INTERACTIONS         |
| <b>Claude Bernard</b> , D and $D_s$ decay constants from a chiral analysis on HISQ ensembles  |  | <b>Yasufumi Araki</b> , Phase structure of topological insulators by lattice strong-coupling expansion  | <b>Carlos Pena</b> , Anomalous dimensions of four-fermion operators from conformal EWSB dynamics  | <b>Masayuki Wakayama</b> , Structure of the sigma meson from lattice QCD  |
| <b>Gordon Donald</b> , $D_s$ to $\phi$ and other transitions from lattice QCD   |  | <b>Wolfgang Bietenholz</b> , Topological Lattice Actions  | <b>Daniel August</b> , The anomalous mass dimension from the techniquark propagator in Minimal Walking Technicolor                          | <b>Abdou Abdel-Rehim</b> , Study of the scalar $a_0(980)$ on the lattice  |
| <b>Francesco Sanfilippo</b> , Semileptonic D-decays with twisted mass QCD on the lattice  |  | <b>Daniel Körner</b> , MCRG Flow for the Nonlinear Sigma Model  | <b>Anqi Cheng</b> , Determining the anomalous dimension through the eigenmodes of Dirac operator  | <b>David Wilson</b> , K pi scattering from Lattice QCD  |
| <b>Issaku Kanamori</b> , $D_s \rightarrow \eta^{(\prime)}$ semi-leptonic decay form factors   |  | <b>Alberto Ramos</b> , The gradient flow in a twisted box   | <b>Kieran Holland</b> , The chiral condensate from the Dirac spectrum in BSM gauge theories   | <b>Christian Lang</b> , $K\pi$ scattering in moving frames  |
| <b>Nuria Carrasco Vela</b> , K and D oscillations in the Standard Model and its extensions from $N_f=2+1+1$ Twisted Mass LQCD                   |  | <b>David Mesterhazy</b> , Lattice Monte Carlo methods for systems far from equilibrium  | <b>Claudio Pica</b> , SU(2) Adjoint MWT in the chirally rotated Schrödinger functional scheme   | <b>Yoichi Ikeda</b> , Search for possible bound Tcc and Tcs on the lattice  |
| <b>James Simone</b> , The $D_s, D, B_s$ and B decay constants from 2+1 flavor lattice QCD   |  | <b>Giorgio Torrieri</b> , Hydrodynamics as a Quantum Field Theory on the lattice  |   | <b>Thibaut Metivet</b> , Lattice study of pion-pion scattering in the rho channel with quark masses close to their physical values                      |

LUNCH BREAK

EXCURSIONS

# WEDNESDAY

31 JULY 2013

## EXCURSIONS



### Excursion A: GUIDED TOUR OF MAINZ

A guided tour through the Cathedral, the Gutenberg museum and the old city revealing the historic treasures of Mainz. The tour will lead you on through the historical city centre with its Fachwerk houses and picturesque corners to the church of St. Stephan which harbours the only church windows by Marc Chagall in Germany.

#### Meeting Point:

Carnival Fountain (Fastnachtsbrunnen) at Schillerplatz at 14:30. Get off bus or tram at stop „Schillerplatz“. You can spot the „Fastnachtsbrunnen“ also on the city map included in your conference package.

### Excursion B: GUIDED TOUR OF FRANKFURT

This guided tour will show you the most popular places of Frankfurt. It will take you from the Frankfurt Cathedral past the City Hall „Römer“, Saint Paul’s Church, home to Germany’s first parliament, and Bethmann Bank to the Frankfurt Stock Exchange and Rothschild Bank. A visit of the Goethe-House, birthplace of Frankfurt’s most famous son, and of the Historical Museum are included.

#### Meeting Point and departure time:

Parking area „Dalheimer Weg“ (see campus map) at 14:00. Arrival back in Mainz scheduled for 19:00.

#### Please note:

All excursions are fully booked; no further changes are possible! For more details on the excursions, please refer to our website: [http://www.lattice2013.uni-mainz.de/62\\_ENG\\_HTML.php](http://www.lattice2013.uni-mainz.de/62_ENG_HTML.php)



### Excursion C: GUIDED TOUR OF HEIDELBERG

During this guided tour through Heidelberg's old town and castle ruin you will discover the beauty of the world-famous architectural ensemble that has been attracting the international public for generations, and savour the sights that have inspired not only Germany's greatest scholars and poets but also the artist William Turner.

#### Meeting Point and departure time:

Parking area „Dalheimer Weg“ (see campus map) at 14:00.  
Departure in Heidelberg 19:30; arrival back in Mainz scheduled for 21:00.

### Excursion D: MONASTERIES AND WINE TASTING IN THE RHEINGAU

The Rheingau is one of the most iconic and attractive regions of Germany. This excursion combines visits to the historical buildings of Eibingen Abbey, Johannisberg Palace, and Eberbach Monastery with a guided walking tour and the opportunity to sample local wines at each destination.

#### Meeting Point and departure time:

Parking area „Dalheimer Weg“ (see campus map) at 14:00.  
Arrival back in Mainz scheduled for 19:00.

### Excursion E: TREE CLIMBING ON THE NEROBERG

The climbing garden on Wiesbaden's Neroberg offers a number of different climbing routes, ranging from the very simple to the very hard. Safety equipment will be provided to ensure a safe and fun experience for nature lovers and sports enthusiasts alike. Suitable footwear (e.g. trainers) should be worn. Note that participants must sign the provided waiver of liability form.

#### Meeting Point and departure time:

Parking area „Dalheimer Weg“ (see campus map) at 14:00.  
Arrival back in Mainz scheduled for 19:00.

## PARALLEL SESSIONS:

# THURSDAY

## 1 AUGUST 2013

### PLENARY SESSIONS:



**09:00 FRANK MAAS**  
Low-energy Precision Physics

**10:00 SERGEY SYRITSYN**  
Hadron Structure Review

**10:45 COFFEE BREAK**

**11:15 CRAIG MCNEILE**  
Determination of Light and Strange Quark Condensates

**11:45 ANDREAS KRONFELD**  
Kenneth Wilson:  
Obituary and 2013 Award Announcement


**12:00 ANDRÉ WALKER-LOUD**  
Nuclear Physics Review

**13:00 LUNCH BREAK**

|              | Room A  | Room B  |
|--------------|---|---|
|              | <b>PARALLELS 7A</b><br>NON-ZERO TEMPERATURE AND DENSITY   | <b>PARALLELS 7B</b><br>HADRON STRUCTURE   |
| 14:00        | <b>Yoshifumi Nakamura</b> , The critical endpoint of the finite temperature phase transition for three flavor QCD with clover type fermions | <b>Alejandro Vaquero</b> , Computation of disconnected contributions to nucleon observables                           |
| 14:20        | <b>Yusuke Taniguchi</b> , 1st or 2nd; the order of finite temperature phase transition of $N_f=2$ QCD from effective theory analysis        | <b>Johannes Najjar</b> , Nucleon structure from stochastic estimators   |
| 14:40        | <b>Jens Langelage</b> , Effective lattice theory for finite density QCD: derivation   | <b>Benjamin Jäger</b> , A high-statistics study of the nucleon axial charge and quark momentum fraction               |
| 15:00        | <b>Mathias Neuman</b> , Onset Transition to Cold Nuclear Matter from Lattice QCD with Heavy Quarks  | <b>Thomas Rae</b> , A high-statistics study of nucleon electromagnetic form factors                                   |
| 15:20        | <b>Wolfgang Unger</b> , The Phase Diagram of Strong Coupling QCD including Gauge Corrections  | <b>Shigemi Ohta</b> , Nucleon axial charge in 2+1-flavor dynamical DWF lattice QCD (for RBC and UKQCD Collaborations) |
| 15:40        | <b>Terukazu Ichihara</b> , QCD phase diagram at strong coupling including auxiliary field fluctuations                                      | <b>Meifeng Lin</b> , Nucleon form factors with 2+1 flavors of domain wall fermions and All-Mode-Averaging             |
| COFFEE BREAK |   |   |
|              | <b>PARALLELS 8A</b><br>NON-ZERO TEMPERATURE AND DENSITY   | <b>PARALLELS 8B</b><br>HADRON STRUCTURE   |
| 16:30        | <b>Saumen Datta</b> , Susceptibilities in $N_f=2$ QCD   | <b>Jeremy Green</b> , Nucleon form factors with light Wilson quarks   |
| 16:50        | <b>Bastian Brandt</b> , QCD thermodynamics with $O(a)$ improved Wilson fermions at $N_f=2$  | <b>Ben Owen</b> , Probing the nucleon and its excitations in full QCD   |
| 17:10        | <b>Sayantana Sharma</b> , Investigation of the $U_1(1)$ in high temperature QCD on the lattice  | <b>James Zanotti</b> , $SU(3)$ flavour breaking and baryon structure  |
| 17:30        | <b>Balint Toth</b> , QCD thermodynamics with dynamical overlap fermions   | <b>Kyriakos Hadjiyiannakou</b> , Sigma-terms and axial charge for hyperons and charmed baryons                        |
| 17:50        | <b>Ting-Wai Chiu</b> , Chiral symmetry and axial $U(1)$ symmetry in finite temperature QCD with domain-wall fermion                         | <b>Ben Menadue</b> , Electromagnetic Structure of the $\Lambda(1405)$   |
| 18:10        | <b>Owe Philipsen</b> , The chiral phase transition of $N_f=2$ QCD at imaginary and zero chemical potential                                  | <b>Marcus Petschlies</b> , Determination of Delta resonance parameters from lattice QCD                               |
| 19:30        | CONFERENCE DINNER (see p. 19)   |   |





| Room C  | Room D   | Room E  | Room F  | Room G  |
|---|--|---|---|---|
|  <b>PARALLELS 7C</b><br>WEAK DECAYS AND MATRIX ELEMENTS |  <b>PARALLELS 7D</b><br>CHIRAL SYMMETRY |  <b>PARALLELS 7E</b><br>THEORETICAL DEVELOPMENTS |  <b>PARALLELS 7F</b><br>PHYSICS BEYOND THE STANDARD MODEL |  <b>PARALLELS 7G</b><br>HADRON SPECTROSCOPY AND INTERACTIONS |
| <b>Elvira Gamiz</b> , Kaon semileptonic form factors with $N_f=2+1+1$ HISQ fermions and physical light quark masses                     | <b>Mikhail Denissenya</b> , Effects of Low vs High Fermionic Modes on Hadron Mass Generation                             | <b>Mithat Unsal</b> , Large N Volume Independence vs. Hagedorn (in)stability  | <b>Gernot Münster</b> , The spectrum of supersymmetric Yang Mills theory -- new results and recent measurements                             | <b>Waseem Kamleh</b> , Exploring the Roper resonance in Lattice QCD   |
| <b>Andreas Juettner</b> , Kaon semileptonic decay from the SU(3)-symmetric point down to physical quark masses                          | <b>Mario Schröck</b> , More effects of Dirac low-mode removal  | <b>Yuta Ito</b> , Monte Carlo studies on the expanding behavior of the early universe in the Lorentzian type IIB matrix model     | <b>Kyle Steinhauer</b> , Loop formulation for the non-linear supersymmetric O(N) sigma-model  | <b>Keh-Fei Liu</b> , The Roper Puzzle   |
| <b>Norman Christ</b> , Calculating the $K_1-K_2$ mass difference and $\epsilon_K$ to sub-percent accuracy                               | <b>Savvas Zafeiropoulos</b> , Effect of the Low Energy Constants on the Spectral Properties of the Wilson Dirac Operator | <b>Margarita Garcia-Perez</b> , Perturbative analysis of twisted volume reduced theories  | <b>David Weir</b> , Eigenvalue spectrum of lattice N=4 super Yang-Mills   | <b>Padmanath Madanagopalan</b> , Spectroscopy of doubly and triply-charmed baryons from lattice QCD   |
| <b>Jianglei Yu</b> , $K_1-K_2$ mass difference from Lattice QCD   | <b>Joni Suorsa</b> , Investigating the Sharpe-Singleton scenario on the lattice by direct eigenvalue computation         | <b>Daisuke Kadoh</b> , Lattice simulation of lower dimensional SYM with sixteen supercharges                                      | <b>Andrzej Görlich</b> , Euclidean 4D quantum gravity with a non-trivial measure term   | <b>Zachary Brown</b> , Charmed Bottom Baryon Spectroscopy   |
| <b>Christopher Sachrajda</b> , Finite-volume effects in the evaluation of the $K_1-K_2$ mass difference                                 | <b>Georg Engel</b> , Chiral condensate from the Banks-Casher relation  | <b>Antonio Gonzalez-Arroyo</b> , Rank and volume dependence in large N gauge theories   | <b>Mikhail Zubkov</b> , Gauge theory of Lorentz group on the lattice  | <b>Roger Horsley</b> , SU(3) flavour symmetry breaking and charmed states   |
| <b>Andrew Lytle</b> , Kaon Mixing Beyond the Standard Model   | <b>Jacobus Verbaarschot</b> , Discretization Effects in the $\epsilon$ Domain of QCD                                     | <b>Takayuki Baba</b> , Action of gauge field on the lattice of twistor space  | <b>Tobias Rindlisbacher</b> , Euclidean Dynamical Triangulation revisited: is the phase transition really 1st order?                        | <b>Amy Nicholson</b> , Baryon properties in meson mediums from lattice QCD  |
| COFFEE BREAK  |  |   |   |   |
|  <b>PARALLELS 8C</b><br>WEAK DECAYS AND MATRIX ELEMENTS |  |  <b>PARALLELS 8E</b><br>THEORETICAL DEVELOPMENTS |  <b>PARALLELS 8F</b><br>PHYSICS BEYOND THE STANDARD MODEL |  <b>PARALLELS 8G</b><br>HADRON SPECTROSCOPY AND INTERACTIONS |
| <b>Christopher Kelly</b> , Progress Towards an ab Initio, Standard Model Calculation of Direct CP-Violation in K decay                  |  | <b>Axel Cortes Cubero</b> , The Integrable Bootstrap Program at Large N and its Applications in Gauge Theory                      | <b>Kari Rummukainen</b> , 1st order phase transition in the MSSM and baryogenesis   | <b>Ying Chen</b> , Lattice study on exotic vector charmonium relevant to X(4260)  |
| <b>Tadeusz Janowski</b> , Determination of the $A_2$ amplitude of $K \rightarrow \pi\pi$ decays   |  | <b>Richard Brower</b> , Radial Quantization for Conformal Field Theories on the Lattice   | <b>Ari Hietanen</b> , Predictions for LHC from SO(4) MWT  | <b>Carsten Urbach</b> , $\eta$ and $\eta'$ masses from lattice QCD with 2+1+1 quark flavours  |
| <b>Daiqian Zhang</b> , Using all-to-all propagators for $K \rightarrow \pi\pi$ decays   |  | <b>Maarten Golterman</b> , A possible new phase in non-perturbatively gauge-fixed Yang-Mills theory                               | <b>Michael Buchoff</b> , Composite Dark Matter Exclusions from the Lattice  | <b>Konstantin Ottnad</b> , Pseudoscalar flavor-singlet mixing angle and decay constants from $N_f=2+1+1$ WtmLQCD                                |
| <b>Robert Mawhinney</b> , Weak Decay Measurements from 2+1 flavor DWF Ensembles   |  | <b>Mario Kieburg</b> , A classification of 2-dim Lattice Theory   | <b>Eliana Lambrou</b> , Searching for a continuum 4D field theory arising from a 5D non-abelian gauge                                       | <b>Sasa Prelovsek</b> , Charmonium-like states from scattering on the lattice   |
| <b>Doug Toussaint</b> , Strange and charmed pseudoscalar meson decay constants from simulations at physical quark masses                |  | <b>Christian Torrero</b> , A new approach to the two-dimensional $\sigma$ model with a topological charge                         | <b>Aarti Veernala</b> , Four Fermion Interactions in Non Abelian Gauge Theory   | <b>Yong-Gwi Cho</b> , $O(a^2)$ -improved actions for heavy quarks   |
| <b>Rachel Dowdall</b> , B, B <sub>s</sub> , K and $\pi$ weak matrix elements with physical light quarks                                 |  | <b>Arthur Dromard</b> , Studying and removing effects of fixed topology in a quantum mechanical model                             |   | <b>Antoine Gérardin</b> , On the $B^{*'} \rightarrow B$ transition  |

CONFERENCE DINNER (see p. 19)

## PARALLEL SESSIONS:

# FRIDAY

## 2 AUGUST 2013

### PLENARY SESSIONS:



**09:00 CHRIS MONAHAN**  
Automated Lattice Perturbation Theory

**09:30 CHULWOO JUNG**  
Progress in Algorithms and Numerical Techniques

**10:00 ALBERT DEUZEMAN**  
Common Coding Strategies for Lattice QCD

**10:30 COFFEE BREAK**

**11:00 JOYCE MYERS**  
Investigating Corrections to a Gaussian Distribution of the Complex Phase





**11:30 JOSE RAMON ESPINOSA**  
Vacuum Stability and the Higgs Boson

**12:00 LUCIA MASETTI**  
Latest Results from the LHC






**12:45 LUNCH BREAK**

|              | Room A  | Room B   |
|--------------|---|--|
|              | <b>PARALLELS 9A</b><br>NON-ZERO TEMPERATURE AND DENSITY   | <b>PARALLELS 9B</b><br>HADRON STRUCTURE  |
| 14:00        | <b>Tilo Wettig</b> , Banks-Casher-type relations for complex Dirac spectra  | <b>Santiago Peris</b> , Tests of the vacuum polarization fits for the muon $g-2$   |
| 14:20        | <b>Jacques Bloch</b> , Sign problem and subsets in one-dimensional QCD  | <b>Grit Hotzel</b> , Leading-order hadronic contribution to $(g-2)_\mu$ from $N_f=2+1+1$ twisted mass fermions                   |
| 14:40        | <b>Oscar Akerlund</b> , Extended Mean Field Study of Complex $\Phi^4$ -Theory at Finite Density and Temperature               | <b>Eric Gregory</b> , First-order hadronic contributions to muon $g-2$ from HEX-smearred clover fermions                         |
| 15:00        | <b>Luigi Scorzato</b> , The Lefschetz thimble and the sign problem  | <b>Christopher Aubin</b> , The hadronic vacuum polarization with twisted boundary conditions                                     |
| 15:20        | <b>Marco Cristoforetti</b> , Relativistic Bose gas on a Lefschetz thimble   | <b>Hanno Horch</b> , Computing the Adler function from vacuum polarization   |
| 15:40        | <b>Kurt Langfeld</b> , Towards a density of states approach for dense matter systems  | <b>Anthony Francis</b> , Adler function and hadronic vacuum polarization from vector correlators in time-momentum representation |
| COFFEE BREAK |   |  |
|              | <b>PARALLELS 10A</b><br>NON-ZERO TEMPERATURE AND DENSITY  | <b>PARALLELS 10B</b><br>NON-ZERO TEMPERATURE AND DENSITY   |
| 16:30        | <b>Junichi Takahashi</b> , Heavy quark potential at finite imaginary chemical potential                                       | <b>Björn Wellegehausen</b> , G <sub>2</sub> -QCD: Spectroscopy and the phase diagram at zero temperature and finite density      |
| 16:50        | <b>Gert Aarts</b> , P wave bottomonium spectral functions in the QGP from lattice NRQCD                                       | <b>Richard Lau</b> , SO(2N) and SU(N) gauge theories   |
| 17:10        | <b>Wynne Evans</b> , Charmonium Potentials at Non-Zero Temperature  | <b>Rudolf Rödl</b> , Staggered operator with topological SU(2) backgrounds at nonzero chemical potential                         |
| 17:30        | <b>Seyong Kim</b> , Lattice NRQCD study of in-medium bottomonium states using $N_f=2+1, 48^3 \times 12$ HotQCD configurations | <b>Jon-Ivar Skullerud</b> , Phase transitions in dense 2-colour QCD  |
| 17:50        | <b>Aoife Kelly</b> , Spectral functions of charmonium from 2 flavour anisotropic lattice data                                 | <b>Yuji Sakai</b> , Analytic continuation in two color QCD with clover-improved Wilson fermion at finite density                 |
| 18:10        | <b>Tim Harris</b> , Bottomonium spectrum at finite temperature  | <b>David Scheffler</b> , Chiral restoration and deconfinement in two-color QCD with two flavors of staggered quarks              |
| 18:30        | <b>Hiroshi Ono</b> , Quarkonium correlation functions at finite temperature in the charm to bottom region                     | <b>Seamus Cotter</b> , Determination of Karsch Coefficients for 2-colour QCD   |
| 18:50        | <b>Yannis Burnier</b> , Temporal mesonic correlators at NLO for any quark mass  |  |



| Room C  | Room D   | Room E | Room F   | Room G  |
|---|--|--------|--|---|
|  <b>PARALLELS 9C</b><br>SM PARAMETERS AND RENORMALIZATION |  <b>PARALLELS 9D</b><br>CHIRAL SYMMETRY |        |  <b>PARALLELS 9F</b><br>THEORETICAL DEVELOPMENTS |  <b>PARALLELS 9G</b><br>SPECIAL SESSION:<br>CODING EFFORTS |
| <b>Paolo Lami</b> , A determination of the average up-down, strange and charm quark masses at $N_f=2+1+1$                                 | <b>Alfonso Sastre</b> , Chiral behavior of pion properties from lattice QCD  |        | <b>Syo Kamata</b> , Non- $\gamma$ Shermiticity minimal doubling fermion  | <b>Claudio Geller</b> , PRACE: Partnership for Advanced Computing in Europe   |
| <b>Eleonora Picca</b> , A $N_f=2+1+1$ "twisted" determination of the b quark mass   | <b>Hidegori Fukaya</b> , Overlap/Domain-wall reweighting   |        | <b>David Adams</b> , Lattice QCD with Staggered Wilson Fermions: An Exploratory Numerical Investigation                            | <b>Abdou Abdel-Rehim</b> , PLQCD library for Lattice QCD on multi-core machines   |
| <b>Lorenzo Riggio</b> , Pseudoscalar decay constants $f_P/f_{P^*}$ , $f_{B_s}$ and $f_{B_s^*}$ with $N_f=2+1+1$ ETMC configurations       | <b>Elena Garcia Ramos</b> , Computation of the chiral condensate in $N_f=2$ and $N_f=2+1+1$ tmQCD at maximal twist       |        | <b>Roberto Frezzotti</b> , Non-perturbative fermion mass generation in Wilson lattice QCD  | <b>Carsten Urbach</b> , Recent development in the tmLQCD software suite   |
| <b>Stefano Lottini</b> , Chiral behaviour of the pion decay constant in $N_f=2$ QCD   | <b>Krzysztof Cichy</b> , Topological susceptibility from twisted mass fermions using spectral projectors                 |        | <b>Stam Nicolis</b> , Quantum Mechanics à la Langevin and Supersymmetry  | <b>Satoru Ueda</b> , Bridge++: an object-oriented C++ code for lattice simulations  |
| <b>Haralambos Panagopoulos</b> , The chromomagnetic operator on the lattice   | <b>Luchang Jin</b> , Study of Anomalous Mass Generation in $N_f=1$ QCD   |        | <b>Hiroto So</b> , Cyclic Leibniz rule: a formulation of supersymmetry on lattice  | <b>Chulwoo Jung</b> , Overview of Columbia Physics System(CPS)  |
| <b>Mauro Lucio Papinutto</b> , Renormalization of HQET $\Delta B=2$ operators: $O(a)$ improvement and $1/m$ matching with QCD             | <b>Joel Giedt</b> , On the decoupling of mirror fermions   |        |  | <b>Stefan Krieg</b> , Experiences with Lattice QCD on the Juelich BG/Q  |

COFFEE BREAK

|   |   |  |  |  |
|---|---|--|--|--|
|  <b>PARALLELS 10C</b><br>HADRON SPECTROSCOPY AND INTERACTIONS |  <b>PARALLELS 10D</b><br>WEAK DECAYS AND MATRIX ELEMENTS |  <b>PARALLELS 10E</b><br>THEORETICAL DEVELOPMENTS |  <b>PARALLELS 10F</b><br>PHYSICS BEYOND THE STANDARD MODEL |  <b>PARALLELS 10G</b><br>SPECIAL SESSION:<br>CODING EFFORTS |
| <b>Masanori Yamada</b> , Omega-Omega interaction on the Lattice   | <b>Daping Du</b> , $B \rightarrow \pi$ semileptonic form factors from unquenched lattice QCD  | <b>Volodymyr Chelnokov</b> , Phase transitions in the three-dimensional $Z(N)$ models  | <b>Rajamani Narayanan</b> , Single site model of large $N$ gauge theories coupled to adjoint fermions  | <b>Bartosz Kostrzewa</b> , Experiences with OpenMP in tmLQCD   |
| <b>Kenji Sasaki</b> , Lattice QCD studies of multi-strange baryon-baryon interactions   | <b>Mariam Atoui</b> , $B_s \rightarrow D_s \ell \nu \ell$ near zero recoil from tmQCD   | <b>Pilar Hernandez</b> , A study of massive gauge theories on the lattice (I)  | <b>Masanori Okawa</b> , Twisted reduction in large $N$ QCD with adjoint Wilson fermions  | <b>M Clark</b> , The QUDA library for QCD on CUDA  |
| <b>Noriyoshi Ishii</b> , The anti-symmetric LS potential in flavor $SU(3)$ limit from Lattice QCD   | <b>Siwei Qiu</b> , Semileptonic decays $B \rightarrow D \ell \nu$ at nonzero recoil   | <b>Michele Della Morte</b> , A study of massive gauge theories on the lattice (part II)  | <b>Liam Keegan</b> , Mass anomalous dimension from large $N$ twisted volume reduction  | <b>Hyung-Jin Kim</b> , Mobius domain wall fermion method on QUDA   |
| <b>Keiko Murano</b> , Quark mass dependence of Spin-Orbit force in parity-odd NN system from 2+1 flavor QCD                                   | <b>Andreas Kronfeld</b> , Heavy-meson semileptonic decays for the Standard Model and beyond   | <b>Masanori Hanada</b> , Does Yang-Mills theory describe quantum gravity?  | <b>Gunnar Bali</b> , Large- $N$ mesons   | <b>Alexei Strelchenko</b> , Implementation of the twisted mass fermion operator in QUDA library  |
| <b>Valentina Verduci</b> , Pion-nucleon scattering in Lattice QCD   | <b>Chris Bouchard</b> , $B$ and $B_s$ semileptonic decay form factors with NRQCD/HISQ quarks  | <b>Arata Yamamoto</b> , Rotating lattice   | <b>Kouji Kashiwa</b> , Phase structure and Hosotani mechanism in QCD-like theory with compact dimensions                                     | <b>Alejandro Vaquero</b> , A QUDA-branch to compute disconnected diagrams in GPUs  |
| <b>Saul Cohen</b> , Looking for a Quarkonium-Nucleus Bound State on the Lattice   | <b>Shoichi Sasaki</b> , Status of Semileptonic Hyperon Decays from Lattice QCD using 2+1 flavor Domain Wall Fermions                      |  | <b>James Hetrick</b> , Lattice investigations of the Hosotani Mechanism of spontaneous symmetry breaking                                     | <b>Michele Brambilla</b> , Code development (not only) for NSPT  |
| <b>Paul Rakow</b> , The Hadronic Decays of Decuplet Baryons   |   |  | <b>Guido Cossu</b> , Hosotani mechanism on the lattice   |  |
| <b>Yoshinobu Kuramashi</b> , 2+1 flavor lattice QCD simulation on K computer  |   |  |  |  |

# SATURDAY

3 AUGUST 2013

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## PLENARY SESSIONS:



**09:00**    **CHRISTOPHER THOMAS**  
Hadron Spectroscopy Review

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**09:45**    **MICHAEL DÖRING**  
Resonances and Multi-Particle States

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**10:15**    **SHINSUKE NISHIGAKI**  
Critical Statistics at the Mobility Edge of QCD  
Dirac Spectra

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**10:45**    **COFFEE BREAK**

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**11:15**    **ANNOUNCEMENTS**  
Lattice 2014 and Future Conferences

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**11:30**    **ETSUKO ITOU**  
The Twisted Polyakov Loop Coupling and the  
Search for an IR Fixed Point

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**12:00**    **JULIUS KUTI**  
The Higgs Particle and the Lattice

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**12:45**    **CLOSING**



# THURSDAY

1 AUGUST 2013

## CONFERENCE DINNER



The conference dinner will take place in the „Kurfürstliches Schloss“ (Electoral Palace) in Mainz on Thursday, August 1<sup>st</sup>, starting with an aperitif and fingerfood at 19:30. Dinner will be served at 20:15.



Map courtesy of Mainzer Verkehrsgesellschaft (MVG)

### Directions

The Electoral Palace is within walking distance from most of the hotels.

### By car:

Please use the parking garage opposite the Electoral Palace; parking areas on the street are reserved for residents.

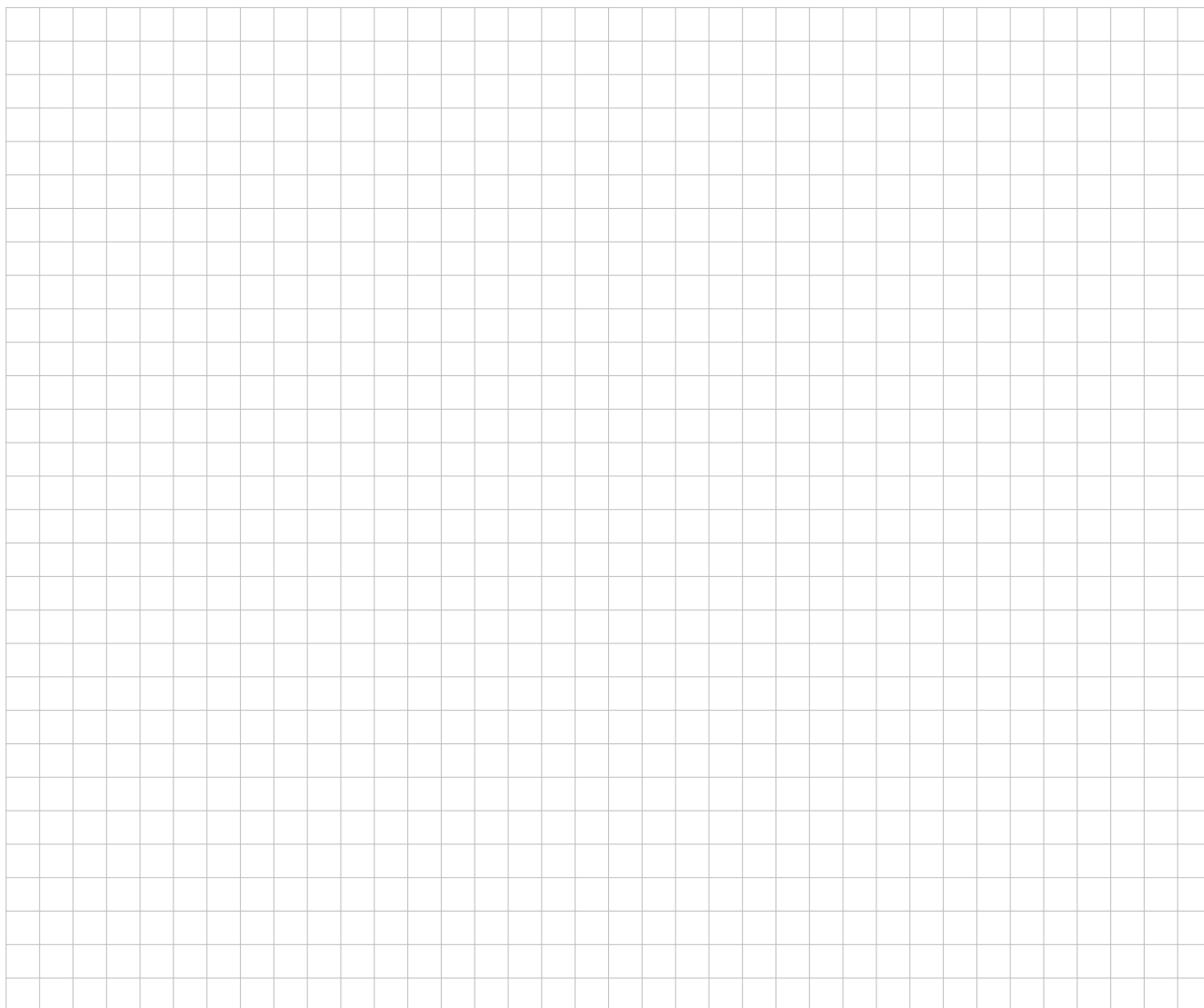
### Public transport:

From the central station („Hauptbahnhof“) take any of the bus lines 6, 6A (direction „Nordfriedhof“) or 9 (direction „Oderstraße“); get off at the stop „Landtag“.

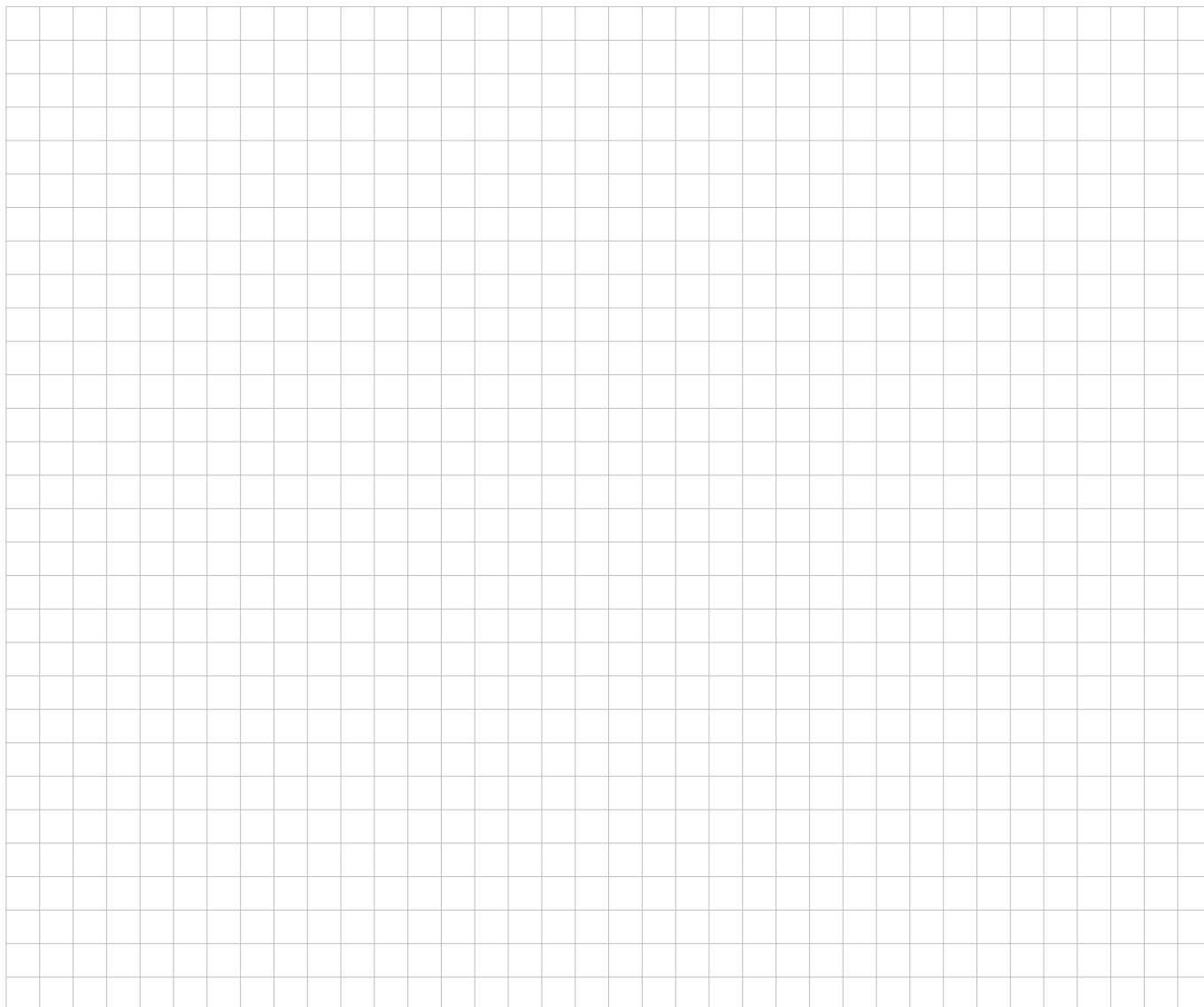
**Please** do not forget your conference badge – it serves as your admission ticket!



## NOTES



## NOTES





## NOTES









## A WINNING COMBINATION! PHYSICISTS, RISK MANAGERS, MANAGEMENT CONSULTANTS



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ting up their trading and risk management systems – from the initial idea through to professional implementation; from financial models to real time interfaces; from simple credit to exotic derivatives; and from a rating system to portfolio management. This involves the use of efficient processes, highly complex computer systems and elaborate mathematics to quantify values and risks and optimise risk and return profiles.

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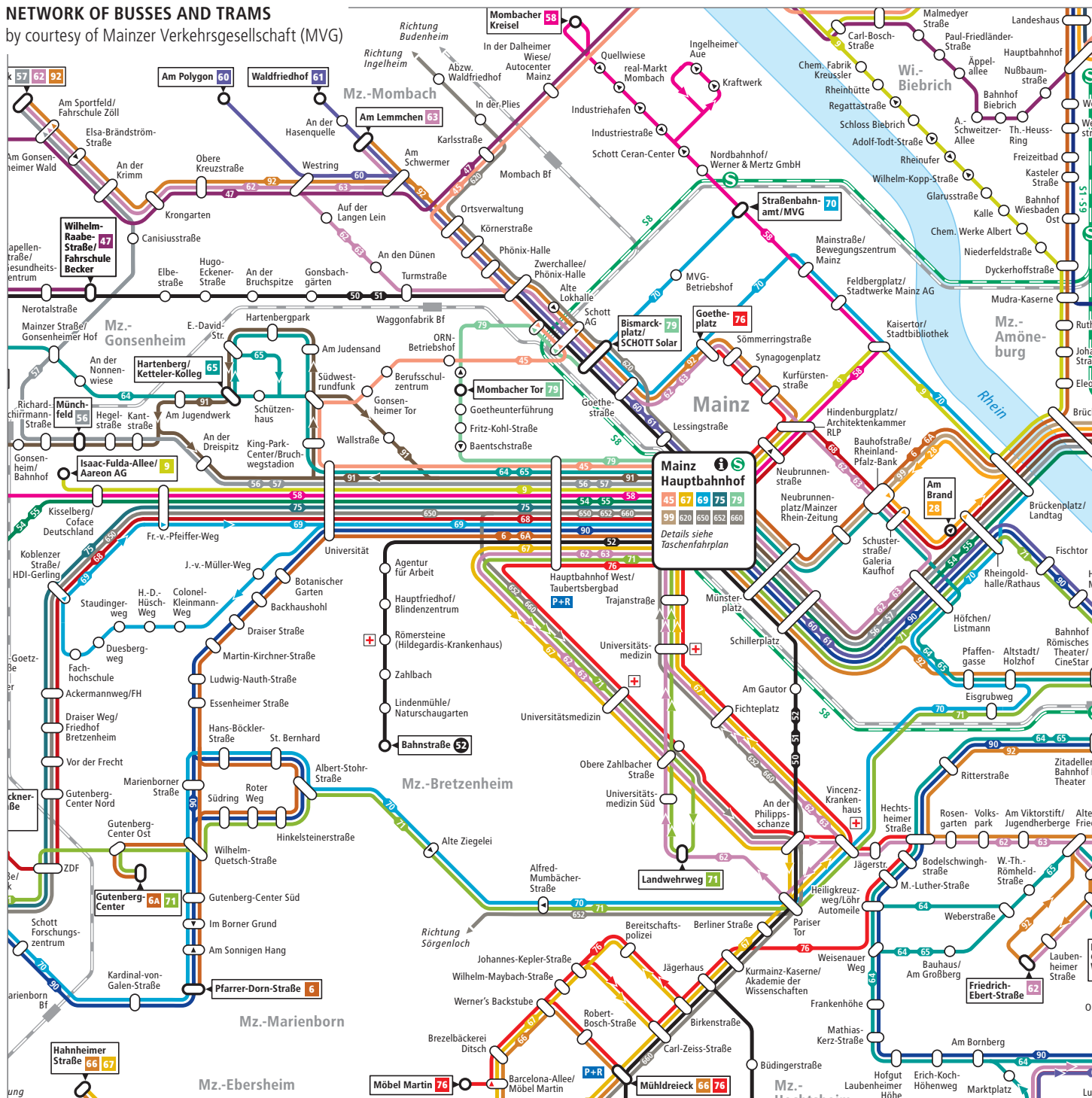
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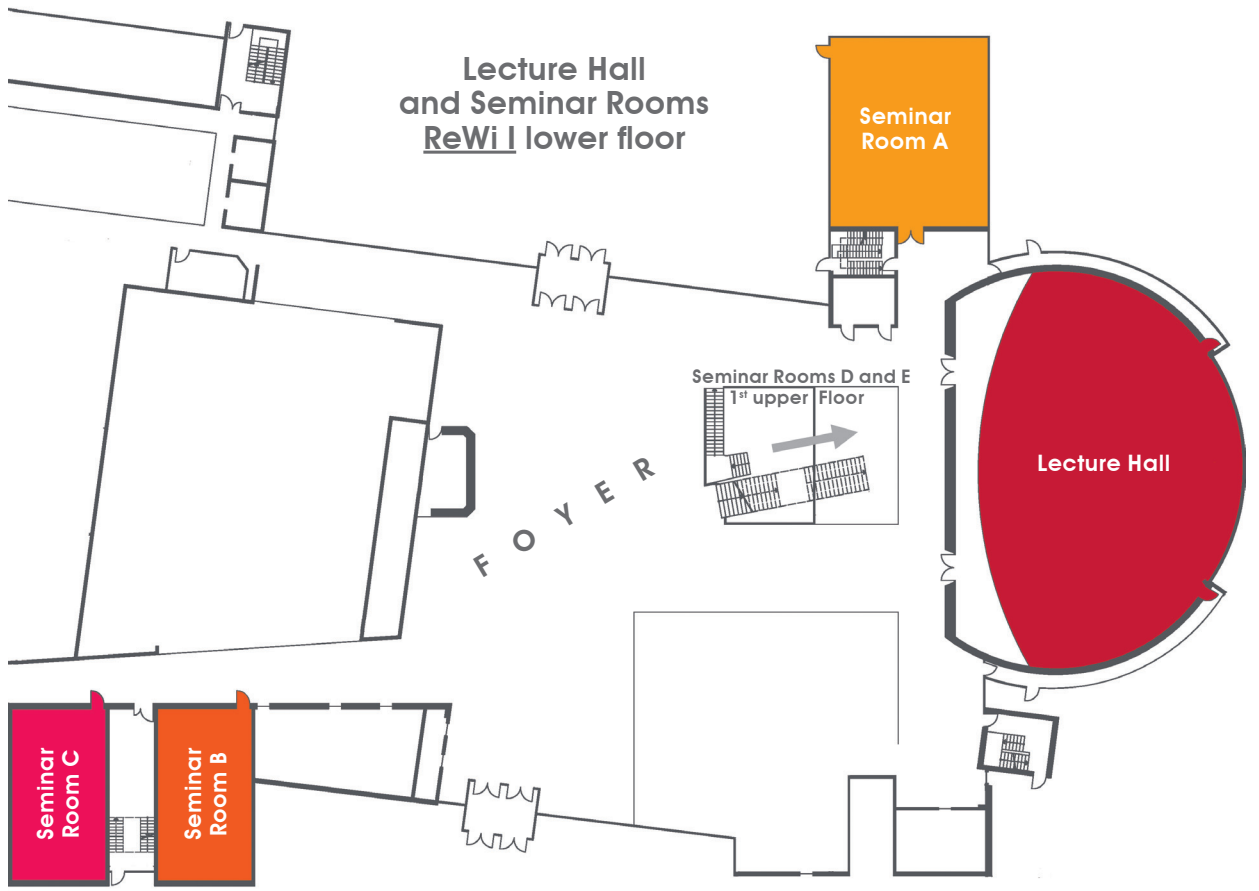
# SCHEDULE

| Monday       | Tuesday        | Wednesday   | Thursday          | Friday         | Saturday     |  |
|--------------|----------------|-------------|-------------------|----------------|--------------|--|
| PLENARIES I  | PLENARIES III  | PARALLELS 5 | PLENARIES V       | PLENARIES VII  | PLENARIES IX |  |
| COFFEE BREAK |                |             |                   |                |              |  |
| PLENARIES II | PLENARIES IV   | PARALLELS 6 | PLENARIES VI      | PLENARIES VIII | PLENARIES X  |  |
| LUNCH BREAK  |                |             |                   |                |              |  |
| PARALLELS 1  | PARALLELS 3    | EXCURSIONS  | PARALLELS 7       | PARALLELS 9    |              |  |
| COFFEE BREAK |                |             | COFFEE BREAK      |                |              |  |
| PARALLELS 2  | PARALLELS 4    |             | PARALLELS 8       | PARALLELS 10   |              |  |
|              | POSTER SESSION |             | CONFERENCE DINNER |                |              |  |

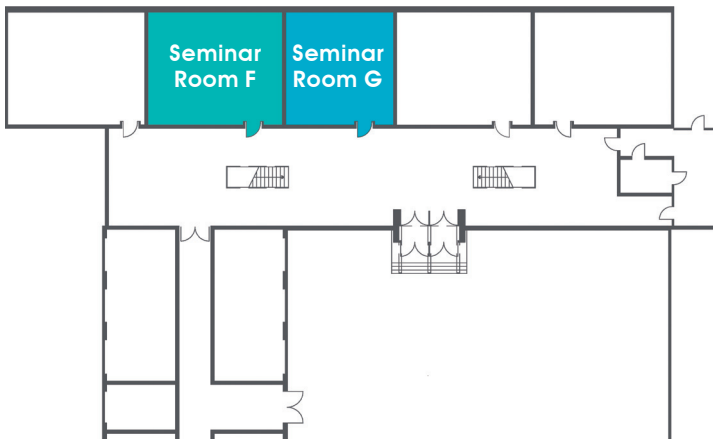
# NETWORK OF BUSES AND TRAMS

by courtesy of Mainzer Verkehrsgesellschaft (MVG)

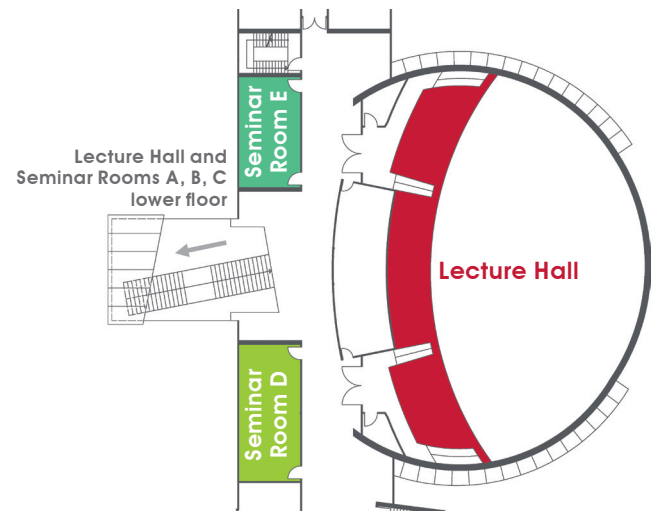




**Seminar Rooms ReWi II  
lower floor**



**Seminar Rooms ReWi I  
1<sup>st</sup> upper floor**





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Study of Strongly Interacting Matter



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