

08:00 -- 08:45

Registration

08:45 -- 09:00 Opening

09:00 -- 10:00 Lecture Room A (HS402)

Chair: Wolfgang Ch. Schmid

Plenary Talk: *Stefan Heinrich* (Universität Kaiserslautern)

Title: *From Monte Carlo to Quantum Computation*

10:00 -- 10:30 Coffee Break

10:30 -- 12:30 Lecture Room A (HS402)

Special Session organized by: *Erich Novak* (Universität Jena)

Topic: *Tractability of Integration*

10:30 G. W. Wasilikowski

On Tractability of Weighted Integration over R^d

11:00 L. Plaskota

Exponent of Tractability for Sparse Grid Quadratures

11:30 E. Novak

When are Integration and Discrepancy Tractable?

12:00 P. Mathè:

Using ergodic Markov chains for numerical integration

10:30 -- 12:30 Lecture Room B (HS403)

Contributed Talks (Chair: Alexander Keller)

Topic: *Computer Graphics and Light Modeling*

10:30 H. Rief

Light propagation modelling in biological tissue by advanced Monte Carlo methods

11:00 M. Sbert

Optimal gathering random walk absorption probabilities for radiosity in scenes with large area sources

11:30 E. Dubaric

Monte Carlo simulation of the transient response of single photon absorption in X-ray pixel detectors

12:00 A.I. Zhmakin

Optimization of a Ray Tracing Method for Radiative Heat Transfer Problems

12:30 -- 13:30

Lunch

Monday 10.09.2001, Afternoon**13:30 -- 14:15 Lecture Room A (HS402)**

Chair: Peter Zinterhof

Honorary Lecture: *Ilya M. Sobol'* (Russian Academy of Sciences)Title: *On the Range Test***14:15 -- 15:30 Lecture Room A (HS402)**

Contributed Talks (Chair: Michael Mascagni)

Topic: *Random Number Generation***14:15** J. Leydold*Automatic non-uniform random variate generation***14:40** G. Leobacher*Sampling from the hyperbolic distribution***15:05** S. Wegenkittl*Conditional Entropy Measures for Pseudorandom Numbers***14:15 -- 15:30 Lecture Room B (HS403)**Special Session organized by: *Alex Keller* (Univ.Kaiserslautern)Topic: *MC Methods in Computer Graphics***14:15** Introduction**14:20** P. Bekaert*Stochastic Relaxation Methods for Radiosity***14:55** M. Sbert*Distributed Multi Path using Transmittances***15:30 -- 16:00** Coffee Break**16:00 -- 18:00 Lecture Room A (HS402)****16:00** M. Matsumoto*A non-empirical test on the weight of the pseudorandom number generator***16:35** T. Nishimura*Defects of commonly used pseudorandom number generators***17:10** Pierre L'Ecuyer and Jacinthe Granger-Piche*Combining Generators from Different Families***16:00 -- 18:00 Lecture Room B (HS403)****16:00** L. Szirmay-Kalos*Cost-driven Multiple Importance Sampling in Monte-Carlo Rendering***16:35** C. Lemieux*Lattice Particle Filters***17:10** A. Keller*Consequences of Interleaved Sampling***19:30 --**

Welcome Reception

at the Faculty of Natural Sciences, University of Salzburg

Tuesday 11.09.2001, Morning

08:30 -- 09:30 Lecture Room A (HS402)

Chair: Gerhard Larcher

Plenary Talk: *Art B. Owen* (Stanford University)
 Title: *Quasi Regression for Computer Experiments*

09:30 -- 10:00 Coffee Break**10:00 -- 12:30 Lecture Room A (HS402)**

Special Session organized by: *Gerhard Larcher* (Univ. Linz)
 and *Pierre L'Ecuyer* (Univ. of Montreal)

Topic: *MC and QMC Methods in Finance*

10:00 Michael Fu

*Pricing American-Style Options:
 A Comparison of Monte Carlo Approaches*

10:30 Martin Predota

*Quasi-Monte Carlo Methods for Option Pricing in the
 Hyperbolic Mode*

11:00 J-G. Simonato

*Numerical Pricing of Contingent Claims on Multiple Assets
 and/or Factors: A Low-Discrepancy Markov Chain Approach*

11:30 A. Kolkiewicz

*Pricing American Style Options Using Low
 Discrepancy Sequences*

12:00 H. Albrecher

*Simulation methods in ruin models with non-linear
 dividend barriers*

10:00 -- 12:30 Lecture Room B (HS403)

Special Session organized by: *Alain Dubus* (Univ. of Brussels)
 and *Marzio Marseguerra and Enrico Zio* (Polit. di Milano)

Topic: *Monte Carlo in Particle Transport*

10:00 E. Atanassov and A. Dubus

*A new weighted Monte Carlo Algorithm for elastic Electron
 Backscattering from Surfaces*

10:30 M. Magolu monga Made

*Transport of Radionuclides in porous Media: A double
 Randomization Technique for the Uncertainty Analysis*

11:00 M. Marseguerra

Simulating the wrong Physics can yield correct Results

11:30 E. Zio

*Monte Carlo Simulation of the Effects of different engineered
 Barriers on the Diffusion of radioactive Contaminant*

12:30 -- 13:30

Lunch

Tuesday 11.09.2001, Afternoon

13:30 -- 15:30 Lecture Room A (HS402)Special Session organized by: *Peter Hellekalek* (Univ.Salzburg)Topic: *Random Numbers in Monte Carlo and Cryptography***13:30** Introduction**13:45** Pierre L'Ecuyer*What's Up with Uniform Random Number Generation?***14:20** Luc Devroye*Recent trends in non-uniform random variate generation***14:55** Ueli Maurer*Randomness and Pseudo-randomness in Cryptography***13:30 -- 15:30 Lecture Room B (HS403)**

Contributed Talks (Chair: Wolfgang Wagner)

Topic: Physical Applications

13:30 J. Anderson*Quantum Monte Carlo: Direct Calculation of Corrections to Trial Wave Functions and Their Energies***14:00** M. Mascagni*A Feynman-Kac Path-Integral Implementation for Poisson's Equation Using an h -conditioned Green's Function***14:30** J. Anderson*Monte Carlo Treatment of UV Light Imprisonment in Fluorescent Lamps***15:00** P. Venkatesh*Stochastic Lagrangian Models of Inhomogeneous Turbulent Flow - a Comparison of the Path-Integration, QMC and MC Approaches***15:30 -- 16:00** Coffee Break**16:00 -- 18:00 Lecture Room A (HS402)****16:00** Karl Entacher*Monte Carlo or quasi-Monte Carlo?**A strategy to use both methods in a simultaneous way*Contributed Talks (Topic: *Quasi-Monte Carlo Methods*)**16:30** H.S. Hong*Distributions of the Discrepancy of Scrambled Digital (λ, t, m, s) -Net***17:00** M.E. Flahive*Figure of Merit for Digital Nets over Z_2* **17:30** Christiane Lemieux*Polynomial Lattice Rules for Quasi-Monte Carlo***16:00 -- 18:00 Lecture Room B (HS403)**

Contributed Talks (Chair: Ivan Dimov)

Topic: Various Applications

16:00 S. Maire*A fast computation of L^2 approximations with Monte Carlo***16:30** G. Paul*How To Build Very Large Percolation Clusters with Very Little Computer Memory***17:00** I. Yoshida*Non-Gaussian nonlinear damage detection by MC filter*

Wednesday 12.09.2001, Morning**08:30 -- 10:00 Lecture Room A (HS402)**

Special Session organized by: *S. Ogawa* (Kanazawa Univ.)

Topic: Dynamical systems and QMCM in numerical solution of differential equations

08:25 Shigeyoshi Ogawa

View of the Session and Introduction of Speakers

08:30 Makoto Mori

Brownian motion generated by one - dimensional dynamical systems

09:10 Syoiti Ninomya

A new simulation scheme: Application of the Kusuoka approximation to finance problems

09:50 Tomoaki Takemi

Report on the numerical experiments of the Haselgrove's method applied to the numerical solution of PDEs

08:30 -- 10:00 Lecture Room B (HS403)

Special Session organized by: *Hans Kosina* and

Mihail Nedjalkov (TU of Vienna)

Topic: MC simulation of semiconductor structures and devices

08:30 C. Jungemann

Modeling of the stochastic noise of Monte Carlo device simulations

09:15 Mihail Nedjalkov

Monte Carlo algorithms for stationary device simulation

10:00 -- 10:30 Coffee Break

10:30 -- 12:30 Lecture Room A (HS402)

10:30 Christian Lecot and Shigeyoshi Ogawa

Random Walk Methods Using Quasirandom Numbers

11:00 Christian Lecot

QMC Methods for Ordinary Differential Equations

11:25 Hiroshi Sugita

Random Weyl sampling for drastic reduction of randomness in Monte-Carlo methods

12:10 Makoto Mori

Construction of higher dimensional low-discrep. sequences

10:30 -- 12:30 Lecture Room B (HS403)

10:30 P. Bordone

Monte Carlo simulation of quantum electron transport based on Wigner Paths

11:15 C. Pennetta

Monte Carlo simulation of electromigration phenomena in metallic lines

12:30 -- 13:30 Lunch

Wednesday 12.09.2001, Afternoon**13:30 -- 15:30 Lecture Room A (HS402)**

Special Session organized by: V.N. Alexandrov (Univ. Reading)
Chih.J.K. Tan (Univ. of Belfast)

Topic: *MC Methods for Linear Algebra and Applications*

13:30 Vassil.N. Alexandrov

Coarse Grained Parallel Monte Carlo Algorithms for Matrix Computations

14:10 B. Fathi

On the Preconditioned Monte Carlo Methods for Solving Systems of Linear Equations

14:50 Vassil.N. Alexandrov

Parallel Monte Carlo Algorithms for Information Retrieval

13:30 -- 15:30 Lecture Room B (HS403)

Contributed Talks (Topic: *Semiconductor devices*)

13:30 M. Saraniti

Numerical challenges in particle-based approaches for the simulation of semiconductor devices

14:00 M. Hjelm

A full band MC simulator for cubic and hexagonal semiconductor materials and devices: an object oriented approach

14:30 F.M. Bufler

Proof of a Simple Time-Step Propagation Scheme for MC Simulation

15:00 D.K. Ferry

A particle Monte Carlo simulation for semiconductor devices based on the Wigner function distribution

15:30 -- 16:00 Coffee Break**16:00 -- 18:00 Lecture Room A (HS402)**

Contributed Talks (Topic: *QMC-Integration*)

16:00 I.M. Sobol'

One more experiment on estimating high-dimensional integrals by Quasi-Monte Carlo methods

16:30 C. Schlier

A practitioners view on QMC integration

17:00 H. Morohosi

Experimental studies for the error estimation methods of quasi-Monte Carlo integrations

17:30 R. Schürer

A Comparison Between Quasi-Monte Carlo and Cubature Rule Based Methods for Solving High-dimensional Integration Problems

16:00 -- 18:00 Lecture Room B (HS403)

Contributed Talks (Topic: *Semiconductor devices*)

16:00 D.K. Ferry

Monte Carlo Modelling of quantum effects in semiconductor devices with effective potentials

16:30 H. Kosina

An Event Bias Technique for Monte Carlo Device Simulation

17:00 Y. Li

A novel parallel adaptive Monte Carlo method for nonlinear poisson equation in semiconductor devices

17:30 W. Mergenthaler

Application of the Metropolis-algorithm to problems of redundancy elimination in functional and parametric tests of Integrated Circuits

19:00 -- Conference Dinner in Klessheim Palace

Thursday 13.09.2001, Morning**08:30 -- 09:30 Lecture Room A (HS402)**

Chair: Christian Lecot

Plenary Talk: *Wolfgang Wagner* (WIAS Berlin)Title: *Stochastic, analytic and numerical aspects of coagulation processes***09:30 -- 10:00 Coffee Break****10:00 -- 12:30 Lecture Room A (HS402)**Special Session organized by: *P. Whitlock* (Brooklyn College)Topic: *Quantum Monte Carlo Methods***10:00** *H. Kröger**Thermodynamical Observables from the Quantum Hamiltonian***10:30** *F. Pederiva**Fermion Monte Carlo***11:00** *T.V. Gurov**Investigation of the sensitivity of the MC solution for the Barker-Ferry equation using different sequential and parallel PRNGs***11:30** *C. Hwang**A Feynman-Kac Formula Implementation for the Linearized Poisson-Boltzmann Equation***12:00** *U. Ravaioli**Monte Carlo simulation of charge transport in nanostructures***10:00 -- 12:30 Lecture Room B (HS403)**

Contributed Talks (Chair: Karl Entacher)

Topic: *Modeling and Simulation***10:00** *A. Ridder**Efficient simulation of a rare event in the infinite server queue***10:30** *T. Langtry**MC and QMC modelling of photonic crystals***11:00** *J. Anderson**The Simulation of Detonations***11:30** *K. Kalna**Nonequilibrium and ballistic transport, and backscattering in decanano HEMTs: A Monte Carlo simulation study***12:00** *T.M. Tovstik**Simulation of the isotropic homogeneous random field in R_3* **12:30 -- 13:30 Lunch****14:00-- Social Activities**

Friday 14.09.2001, Morning**08:30 -- 09:30 Lecture Room A (HS402)**

Chair: Walter Bauer

Plenary Talk: *Michael Schreiber* (TU Chemnitz)Title: *The Hartree-Fock Based Diagonalization - an Efficient Algorithm for the Exact Treatment of Many Interacting Disordered Electrons in Solid State Physics***09:30 -- 10:00** Coffee Break**10:00 -- 12:30 Lecture Room A (HS402)**Special Session organized by: *M. Schreiber* (TU Chemnitz)Topic: *MC Simul. in Solid State Physics and Material Sciences***10:00** James B. Anderson*Monte Carlo Methods in Electronic Structure for Large Systems***10:30** Alexandra Viel*Quantum Monte Carlo Study of Doped 4He Clusters***11:00** Maziar Nekovee*Quantum Monte Carlo Analysis of Exchange and Correlation in the Strongly Inhomogeneous Electron Gas***11:30** Wolfram Strepp*Phase Transitions in Model Colloids in Reduced Geometry***12:00** Andrzej Patrykiewicz*The Interplay Between Spreading of Adsorbed Films and their Wetting Behavior***10:00 -- 12:30 Lecture Room B (HS403)**Special Session organized by: *Karl Sabelfeld* (WIAS Berlin)Topic: *Stochastic models of turbulent transport***10:00** Karl Sabelfeld*Lagrangian Stochastic models for transport of interacting and diffusing particles***10:35** Michael Mascagni*First- and Last-Passage Diffusion: Key Concepts in the Study of Porous and Composite Media***11:10** Olivier Smidts*Lagrangian stochastic models for transport in statistically homogeneous porous medium***11:45** I.A. Shalimova*On a variance reduction technique in the particle simulation governed by SDEs***12:30 -- 13:30**

Lunch