Summer Semester 2012
Introduction to Computational Physics (UKWR2)

Lecturers: Rainer Spurzem, Ralf Klessen

Location Wed 9:15-10:45, Fri 11:15-12:00: INF 308, KIP, Hörsaal 2
The Lecture will be offered in **English Language** . There will be one tutorial in German and one in English

Lecture Time Plan

Wed 9.15	Fri 11.15	Spurzem	Klessen	Chapter-Number: Topic
18.4	20.4.	x	x	Introduction, 1-3: Practical Exercises/Mathematica
25.4	27.4.		x	4: Ord. Diff. Eqs. I: Two-Body Problem, Elementary Euler
2.5	4.5.		x	6: Ord. Diff. Eqs. II: Runge-Kutta (2,4,higher) and more
9.5	11.5.	x		6: Ord. Diff. Eqs. III: Advanced / Numerov / Hermite / BS
16.5	18.5.	x		6. Ord. Diff. Eqs. IV: Lorenz-Attractor, Nonlinear Dynamics
23.5	25.5.	x		6. Ord. Diff. Eqs. V: Lorenz-Attractor, Nonlinear Dynamics
30.5	1.6.		x	5. Linear Algebra I / Matrices / Eigenvalues
6.6	8.6.		x	5. Linear Algebra II / Householder / QR-QM, ...
13.6	15.6.			SPH?
20.6	22.6.		x	Linear Algebra III: quantum mechanics, Schrödinger-Eq.
27.6	29.6.	x		7. Discrete Systems: logistic map, bifurcation diagram, chaos, Singer theorem
4.7.	6.7.		x	8,9: Random Numbers, Monte Carlo methods
11.7.	13.7.	x		9: Monte Carlo methods, Ising Model I
18.7.	20.7.	x		9: Ising-Model II
25.7.	27.7.	x	x	Outlook

Further Informations

http://www.ari.uni-heidelberg.de/lehre/SS12/compphys/compphys.php.de
http://www.ari.uni-heidelberg.de/lehre/SS12/compphys/compphys.php.en

Tutorials (Übungen)

Friday, 13:15 - 16:00, Im Neuenheimer Feld 227, CIP Pool KIP 1.401, Mykola Malygin (in English)
Monday, 13:15 - 16:00, Im Neuenheimer Feld 227, CIP Pool KIP 1.401, Jan Rybizki (in German)

Tobias Brandt is available as further tutor for advice and questions.

The assignments (Übungsaufgaben) can be done by a single person or a group of two or three persons.

Assignments are prepared in the tutorials hours, with help of tutors and lecturers (sometimes).

Every week, usually Wednesday afternoon, a new assignment sheet (Übungsblatt) will be published in the webpage of the lecture. Deadline to hand in the assignments (electronically) is also Wednesday, after one week.

The results of the assignments will be discussed in the tutorials and if necessary also in the lecture.

Your tutors

Tobias Brandt, tbrandt@ari.uni-heidelberg.de (English, German)
Mykola Malygin, malygin@mpia.de (English)
Jan Rybizki, rybizki@ari.uni-heidelberg.de (English, German)