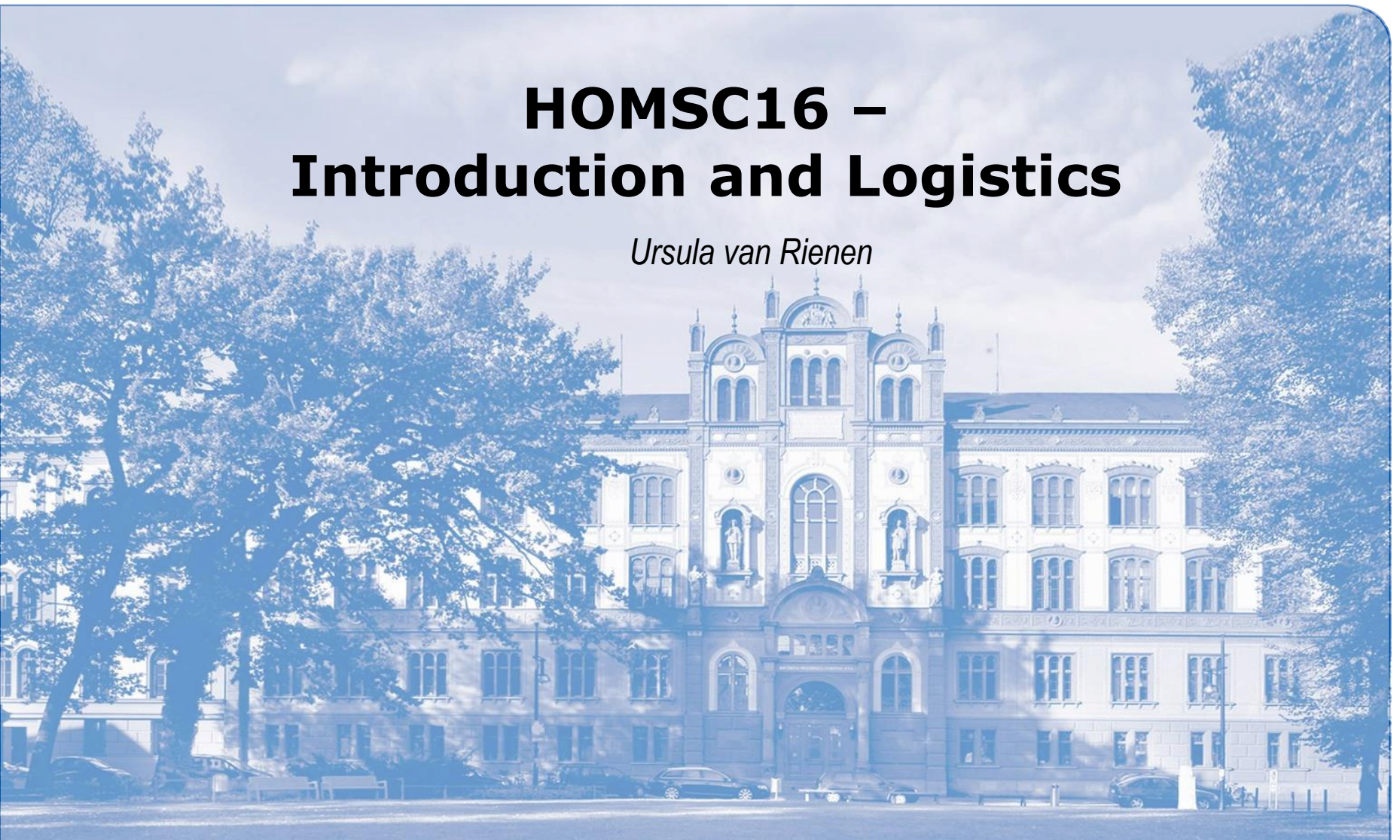


HOMSC16 – Introduction and Logistics

Ursula van Rienen



Welcome to Technologie Park Warnemünde (TPW)



Source of pictures: www.tpw-rostock.de

Technologie Park Warnemünde offers

- office and commercial spaces with modern infrastructure
- an educational and conference center with rooms in different sizes for events
- a centrally located cafeteria (Ripka catering)

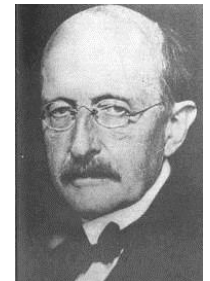
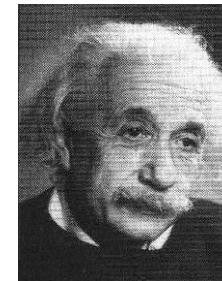
Rostock – An Old Hanseatic City

- City rights since 1218
- Hanseatic since 1257
- Harbour city
- Business areas
 - life science
 - maritime industry
 - tourism
 - transport & logistics of goods



University of Rostock

- Established in 1419
- Oldest university in the Baltic sea region
- Third oldest university in Europe
- Founding faculties:
 - Facultas artium
 - Faculty of Law
 - Faculty of Medicine
- 20th century: extension to a comprehensive university with 9 faculties
- Honorary Doctors
 - amongst numerous others: Nobel Laureates Albert Einstein and Max Planck



University of Rostock – Facts

- 9 Faculties
- More than 13,700 students
- 270 academic staff
- About 2,926 co-workers,
- Annual budget >157 Mio €,
in addition over 57 Mio € external funding
- About 900 foreign students from 98 nations



9 Faculties

- Agricultural and Environmental Sciences
- Computer Science and Electrical Engineering
- Law
- Mechanical Engineering and Marine Technology
- Mathematics and Natural Sciences
- Medicine
- Humanities
- Economic and Social Sciences
- Theology



Faculty for Interdisciplinary Research

- Research and education spread over different faculties
- Concentration on few topics
- Improved networking amongst scientists
- Part of the programme “Uni Rostock 2019”
- 4 Departments
 - Science and Technology of Life, Light & Matter
 - Maritime Systems
 - Aging of Individuals and Society
 - Knowledge – Culture – Transformation



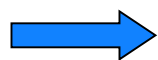
Faculty for Interdisciplinary Research

- Dean
Prof. Dr. Rüdiger Köhling
- Vice Dean
Prof. Dr. Elizabeth Prommer
- 4 Departments
- 4 Graduate Schools
- Strong interaction with associated institutions
such as Leibniz-, Max-Planck-, Fraunhofer-Institutes
- Established in October 2007
- Supported by University and State MV with 4.2 Mio €

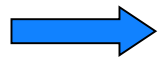


Department of Life, Light and Matter

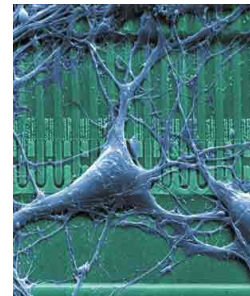
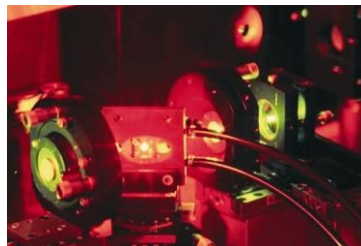
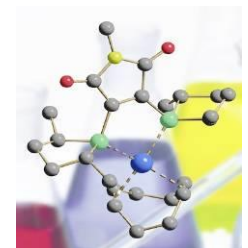
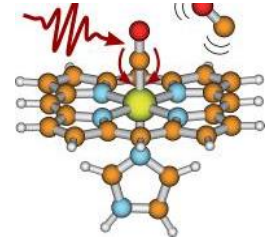
The new role of light and molecule in natural and life sciences



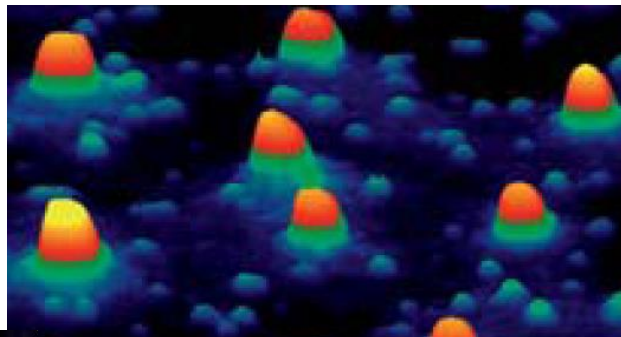
Manipulate on a microscopic level using light, chemical compounds or nanostructures



Novel tools for medicine, natural and engineering science



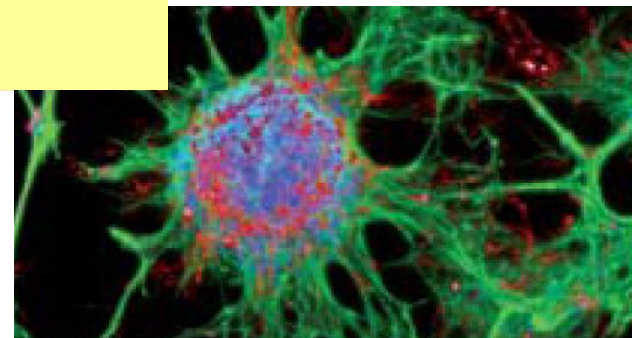
Department of Life, Light and Matter



New materials and
systems



Atomic and molecular
processes

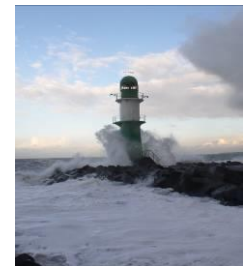
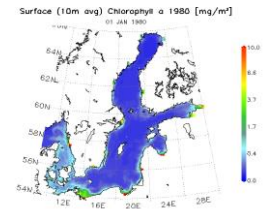


Reconstruction of biological
functions

Department of Maritime Systems

Habitat and economic coastal zones – an interdisciplinary challenge

- ➔ Robust models (Baltic sea)
- ➔ Novel forms of use such as aqua culture
- ➔ Analysis of economic and ecologic factors



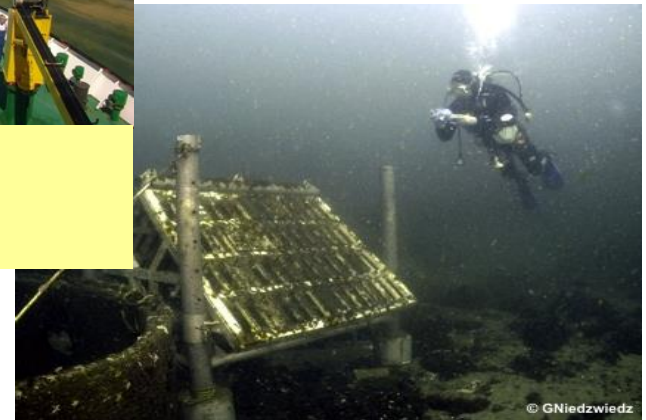
Department of Maritime Systems



Costal zones in global and regional change



Use of maritime systems

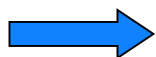
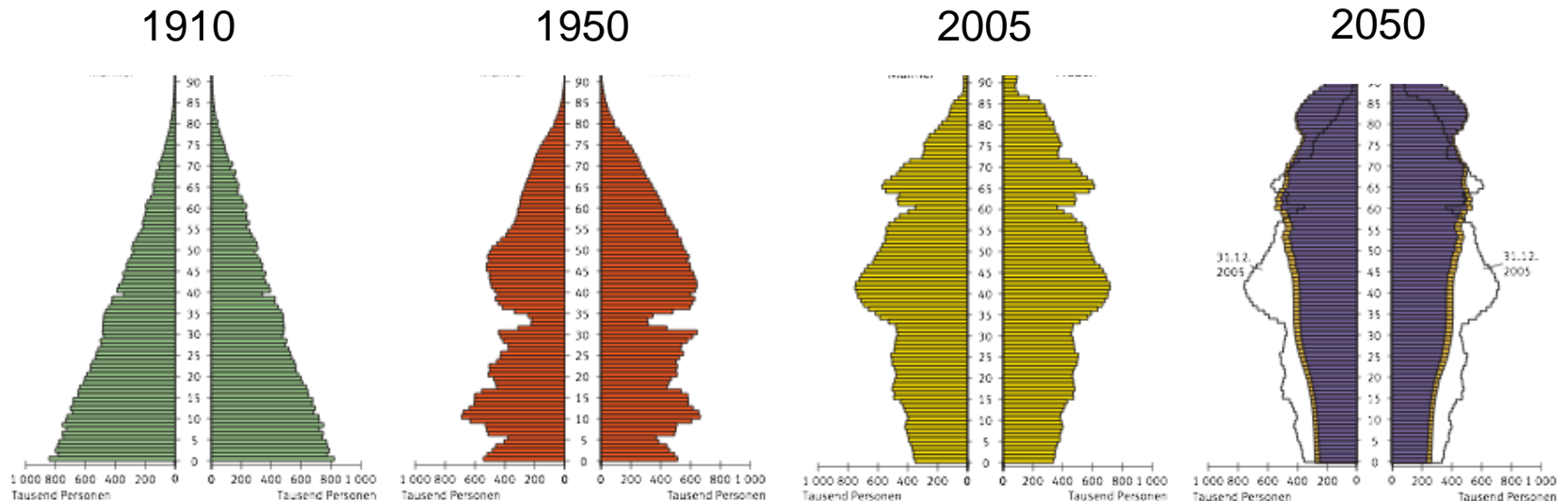


Sustainable development and management

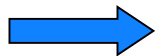
Department of Ageing of Individuals and Society

Demographic change = challenge for industrialised countries

am 31.12.2005



Adapt medical and social needs of young & elderly people



Use of technical means for assisted living

Department of Ageing of Individuals and Society



Mobility and physical capabilities



Cognition, orientation, memory



Individual life skill and social participation

Department of Knowledge - Culture - Transformation

The impact of a globalized and digitalized world: A challenge for Social Sciences and Humanities

- Conflicts and benefits of cultural encounters
- Computerization changes the way our world is perceived and explained

➡ develop innovative cross-disciplinary methodical approaches for the description of cultural encounters

➡ stimulate dialogues between technical sciences and humanities



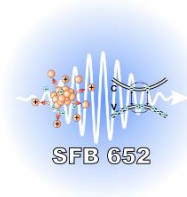
Interdisciplinary Faculty: First Successful Outcomes

- Research building
 - - 2400 m²
 - - 20 Mio €
- Successful applications in national programmes for high level research
- Different joint BMBF projects initiated from Rostock
- International master program: Physics of Life, Light and Matter
- International workshops
- Master Course Aquaculture



Other Success Stories..

- Coordinated research programmes
- SFB 652



- „MikroLas - Innovative Produkte und Verfahren durch Einsatz ultrakurzer Laserpulse“



- Graduate Schools
- *welisa*



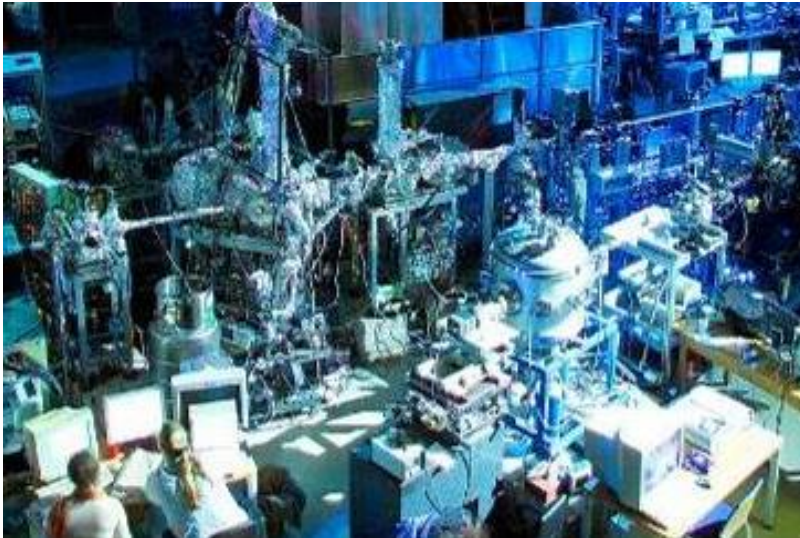
- MuSAMA

- - Cultural Encounters and the Discourses of Scholarship



Institute of Physics

- 14 Research Groups
- Leibniz Institute of Atmospheric Physics at University of Rostock (IAP)
- Leibniz Institute for Baltic Sea Research Warnemünde ... (IOW)
- SFB „Correlations in Radiation Fields“
- Leibniz-Professorship for Applied Physics: Bioelectrics at INP Greifswald

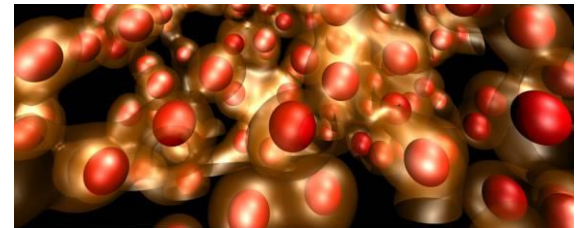
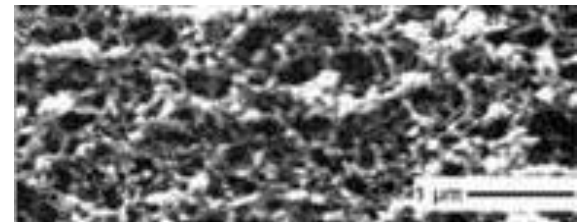
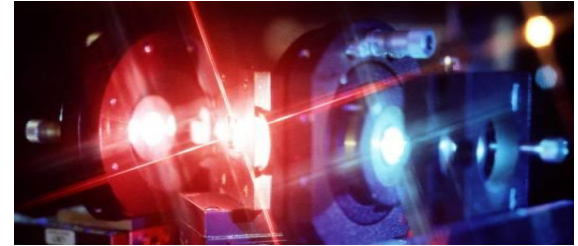


History

- **Otto Stern** **1921 - 1923 Professor for Theoretical Physics**
- Nobel Prize in Physics
- **Walter Schottky** **1923 - 1927 Professor for Theoretical Physics**
- electronics
- **Friedrich Hund** **1927 - 1929 Professor for Theoretical Physics**
- Hund rules, magnetism
- **Paul Kunze** **1933 - 1958 Professor for Experimental Physics**
- detected positrons simultaneously with Anderson
- **Pascal Jordan** **1929 - 1944 Professor for Theoretical Physics**
- **Hans Falkenhagen** **1949 - 1965 Professor for Theoretical Physics**
- electrolytes, worked with Debye

Physics in Rostock

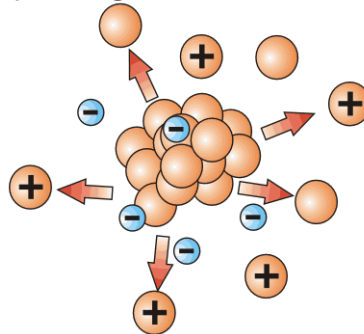
- **Optics and Laserphysics**
New light for new applications
- **Surfaces and Interfaces**
unravel mechanisms and processes on the nanoscale
- **Nanotechnology and New Materials**
How small can a magnet be?
- **Atoms, Molecules, Particles, Plasmas**
What are the fundamental processes?
- **Atmospheric Physics and Oceanography**
What is happening in the upper atmosphere?
Currents and exchange processes of the Baltic Sea



Sonderforschungsbereich (SFB) 652



cluster, nanoparticle,
hydrogen droplets

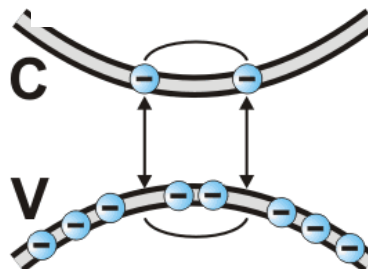
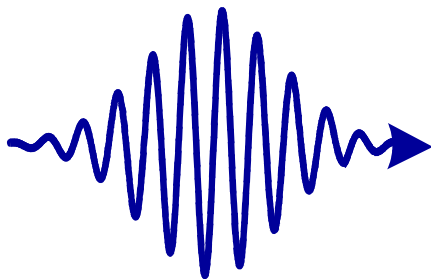


strongly correlated
Coulomb systems

project area A

Strong Correlations and
Collective Effects in
Radiation Fields

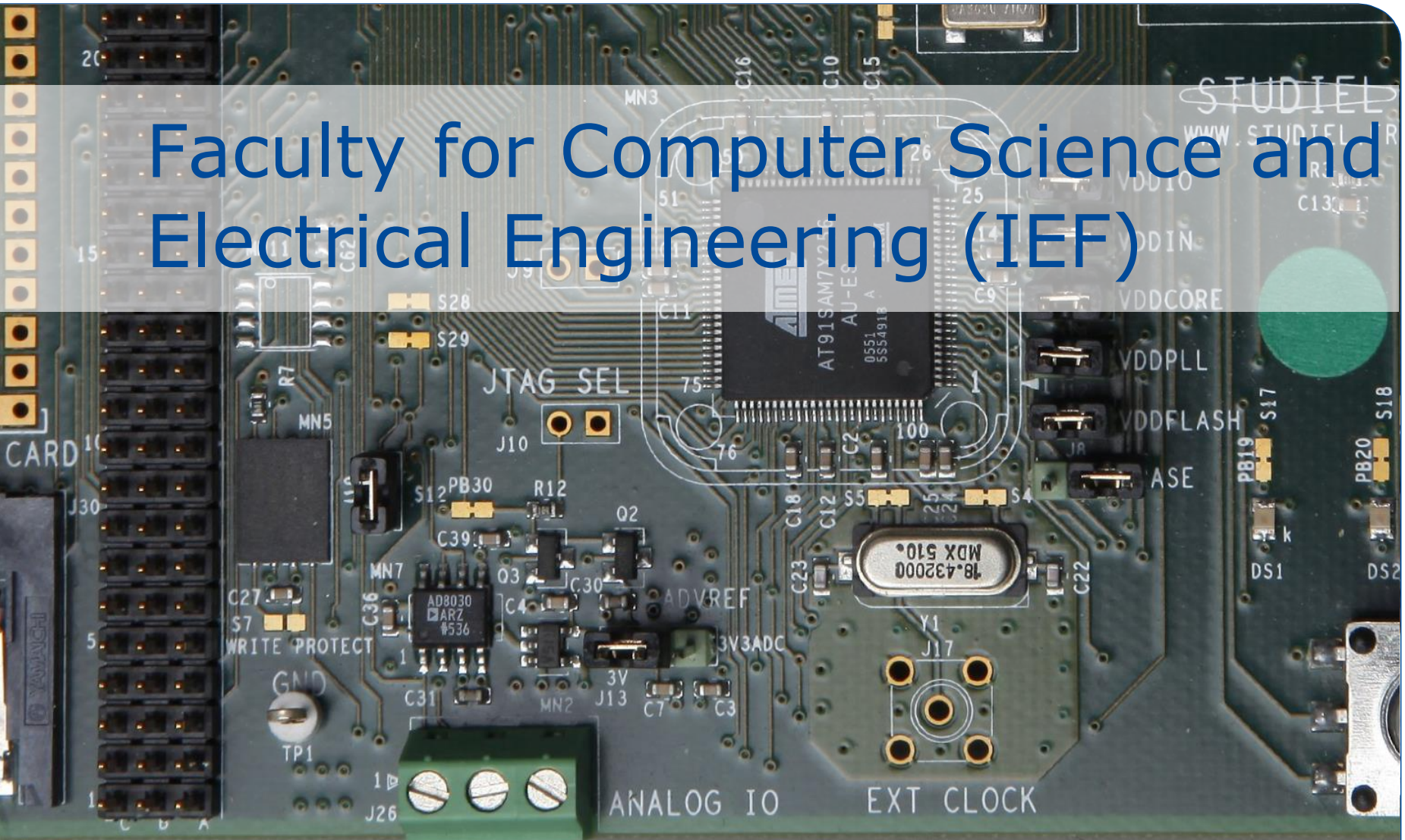
semiconductor, quantum films,
molecular systems



generation of
correlations in
excitonic systems

project area B

Faculty for Computer Science and Electrical Engineering (IEF)



IEF Staff and Students

- 32 professors incl. 1 junior professor
- 194 (further) scientific staff
- 115 persons paid by third party money
- 57 technical staff
- 950 students including 182 PhD students

IEF Institutes

- General Electrical Engineering
 - Optoelectronics und Photonic Systems
 - Technical Electronics
 - Electromagnetic Field Theory
- Applied Microelectronics and Data Technology
- Automation Engineering
- Electrical Engineering
- Device Systems and Current Sourcing Logic
- Communications Engineering
- Institute of Computer Science

Chair for Electromagnetic Field Theory: Research Topics

- Computational Bio-Electromagnetics
 - DFG-Research Training Group 1505/1 *welisa*: Analysis and simulation of electrical interactions of implants with bio-system
 - DFG projects in close relation to *welisa*
- Computational Electromagnetics in Accelerator Physics
 - RF-Simulations (Modes in Cavities, Coupler Design, etc.)
 - Beam Dynamics Simulations
 - Fast Poisson Solvers (Multigrid, FFT, etc.)
 - Funding: EU, DFG, BMBF, Household



Acknowledgement to HOMSC16 Sponsor CST AG

- We would kindly like to thank our industrial sponsor Computer Simulation Technology AG for
 - badges,
 - cloth bags,
 - writing pads with pens,
 - marketing brochures, and
 - partial support of our barbecue event on Tuesday.
- In particular, we want to express our gratitude and appreciation to the CST AG marketing director Martin Timm who made the sponsorship possible in a very unbureaucratic fashion.

Acknowledgement to HOMSC16 Sponsor EuCARD II

- We would kindly like acknowledge the EuCARD II sponsor for support of
 - inviting our speakers,
 - our students.
- In particular, we want to express our gratitude and appreciation to Peter McIntosh who made the sponsorship possible in a very unbureaucratic fashion.

Oral Contributions @ HOMSC16

- Each slot has 30 minutes: **20 minutes talk + 10 minutes discussion**
- Every participant is encouraged to contribute to the discussions (small number of participants → lively discussions)
- **All speakers must give their presentations from the laptop set up in the auditorium.**
- Speakers must upload their talks to Indico at least 24 hours in advance of their presentation.
- In case you need assistance, contact Thomas Flisgen from LOC.
- Speakers are asked to check whether their slides are correctly displayed on the laptop prior to the beginning of the session.
- Formats allowed are Microsoft Powerpoint Version 2010 (.ppt or .pptx) and Adobe Acrobat Reader 9.x (.pdf).

Wireless LAN @ HOMSC16

- Wireless LAN is available at HOMSC16
- Name of Network: TPW
- Password:

Catering @ HOMSC16

- Coffee breaks will take place just in front of the conference room.
- Lunch breaks will take place in the cafeteria at Ripka Catering just one floor below the conference room.
- For each participant one main meal and one drink is included in the conference fee.

Barbecue Party @ HOMSC16

- The HOMSC16 barbecue party will take place on Tuesday 18:00 – 22:00 in Kurhaus Warnemünde.
- The Kurhaus is located close to the big Neptun hotel (in other words, Kurhaus is the next building to the Neptun hotel when heading east)
- In addition to the food, we negotiated a beverage flatrate which includes beer, wine, sparkling wine, and non-alcoholic drinks such as water. Everything is covered by the fee and our sponsor.



Source of picture: www.kurhaus-warnemuende.de

Location of HOMSC16 Barbecue Party

Source of picture: de.wikipedia.org



Source of picture: www.kurhaus-warnemuende.de



Source of picture: www.openstreetmap.org

Program on Monday

Design of SRF Cavities and HOM Effects			
09:00	09:30	Design of the 9-cell superconducting cavity for EUV light source accelerator	Konomi
09:30	10:00	Review of Higher Order Modes Effects in the LCLS-II Superconducting Linac	Saini

10:00	10:10	Group Foto	
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10:10	10:40	Coffee Break	
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HOM-based Diagnostics			
10:40	11:10	Conspectus of HOMs in SC Cavities: BPMs and Damping	Jones
11:10	11:40	HOM Characterization for Beam Diagnostics at the European XFEL Injector	Baboi

11:40	13:10	Lunch Break	
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Numerical Simulations for SRF Cavities (Part 1)			
13:10	13:40	Electromagnetic Modeling and Eigenfield Analysis of Superconducting Cavities	Ackermann
13:40	14:10	Characterisation of HOMs Using GSM Method in Third Harmonic Accelerating Module of E-XFEL	Joshi
14:10	14:40	Generation of a Compendium of Resonant Modes in the Chain of Third Harmonic TESLA Cavities for the European XFEL	Flisgen

14:40	15:10	Coffee Break	
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Numerical Simulations for SRF Cavities (Part 2)			
15:10	15:40	Application of State-Space Concatenation Scheme to Chains of SRF Cavities	Galek
15:40	16:10	Study on HOM Damping Effects in SRF Cavities of the BESSY VSR Project	Tsakanian
16:10	16:40	Direct time-domain computation of wake fields at third harmonic module of the European XFEL	Zagorodnov

The Local Organizing Committee



Ursula van Rienen



Dirk Hecht



Thomas Flisgen

wish you a successful HOMSC16!