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## Summer School 2017

Non-Equilibrium Dynamics  
of Condensed Matter  
in the Time Domain

August 7 – 11, 2017  
St. Peter-Ording, Germany

[www.uni-due.de/sfb1242/summerschool.php](http://www.uni-due.de/sfb1242/summerschool.php)



CRC  
1242

DFG Deutsche  
Forschungsgemeinschaft

## Registration & General Information

### Organizing Committee

Dr. Nora Dörmann (+49 (0) 203/ 379-1545,  
nora.doermann@uni-due.de)  
Prof. Dr. Eckart Hasselbrink  
Prof. Dr. Rossitza Pentcheva  
PD Dr. Klaus Sokolowski-Tinten

### Registration

- The school is intended for graduate students, PhD students and postdocs in condensed matter physics and chemistry with emphasis on non-equilibrium processes.
- For registration details, go to:  
[www.uni-due.de/sfb1242/summerschool.php](http://www.uni-due.de/sfb1242/summerschool.php)
- Registration is required. Because the number of participants is limited to 70, interested students are requested to apply with a supporting letter of their supervisors before June 18, 2017. Accepted applicants will be informed by July 1 via E-mail.

### Fee

Universities and research facilities: € 100  
(incl. 19% VAT)

### Venue

CAMPUS-NORDSEE Gästehaus  
Zum Karpfenteich 5  
25826 St. Peter-Ording  
Phone: + 49 (0) 4863/ 4711-2000  
E-mail: [gaestehaus@campus-nordsee.de](mailto:gaestehaus@campus-nordsee.de)  
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## CRC 1242 at a Glance

Non-equilibrium states can be created in condensed matter through ultrashort pulsed external stimuli, such as light, pressure, electrical voltage or particles. Our CRC 1242 aims to achieve a material-specific, microscopic understanding of such non-equilibrium states. To this end, new tools in experimental and theoretical physics will be developed in this project to describe the time evolution from the moment of the stimulus to a state close to equilibrium in time and space.

In addition to the research projects, an Integrated Research Training Group (IRTG) is included in the CRC 1242. This IRTG provides the doctoral students with a comprehensive overview of fundamental sciences and a training program in key skills, thus preparing them for potential careers in academia, industry or administration.

The Summer School aims at introducing beginning and advanced graduate students to the modern concepts in the field and to state-of-the-art results.

### CRC 1242 Spokesperson

Prof. Dr. Uwe Bovensiepen  
Faculty of Physics  
[uwe.bovensiepen@uni-due.de](mailto:uwe.bovensiepen@uni-due.de)

### CRC 1242 Graduate School

Prof. Dr. Eckart Hasselbrink  
Faculty of Chemistry  
[eckart.hasselbrink@uni-duisburg-essen.de](mailto:eckart.hasselbrink@uni-duisburg-essen.de)



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## ***Monday, August 7***

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13:30 *Registration and Lunch*

15:00 **Lecture 1**  
Non-equilibrium dynamics: An overview from a theorist's perspective  
Speaker: Dietrich Wolf  
(University of Duisburg-Essen)

16:15 *Coffee break*

16:45 **Lecture 2**  
Time-resolved photoemission  
Speaker: Michael Bauer  
(University of Kiel)

18:00 *Dinner*

19:00 Reception

## ***Tuesday, August 8***

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08:00 *Breakfast*

08:50 **Lecture 3**  
Many-body description of electronic excitations: GW and BSE  
Speaker: Claudia Draxl  
(Humboldt University of Berlin)

10:05 *Coffee break*

10:35 **Lecture 4**  
Non-adiabatic gas-surface interactions  
Speaker: Sascha Kandratenka  
(Max Planck Institute for Biophysical Chemistry)

12:00 *Lunch*

14:45 **Lecture 5**  
Time resolved non-linear molecular spectroscopy  
Speaker: Benjamin Dietzek  
(University of Jena)

16:00 *Coffee break*

16:30 Topical discussion with the speakers

18:00 *Dinner*

19:00 Poster session

## ***Wednesday, August 9***

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08:00 *Breakfast*

08:50 **Lecture 6**  
Time-dependent DFT  
Speaker: Sangeeta Sharma  
(Max Planck Institute of Microstructure Physics)

10:05 *Coffee break*

10:35 **Lecture 7**  
Density matrix theory: Ultrafast carrier dynamics in atomically thin 2D materials  
Speaker: Ermin Malic  
(Chalmers University of Technology)

12:00 *Lunch*

14:45 **Lecture 8**  
Fabrication and investigation of epitaxial quantum dots and quantum-dot molecules  
Speaker: Wolfgang Hansen  
(University of Hamburg)

16:00 *Coffee break*

16:30 Topical discussion with the speakers

18:00 *Dinner*

19:00 Inside Nature-branded journals  
Speaker: Luke Fleet  
(Nature Physics – Nature Research)

## ***Thursday, August 10***

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08:00 *Breakfast*

09:30 Departure Conference Outing

13:30 *Lunch*

15:00 **Lecture 9**  
X-ray absorption spectroscopy  
Speaker: Tonya Vitova  
(Karlsruhe Institute of Technology)

16:15 *Coffee break*

16:30 **Lecture 10**  
Electrons in quantum dots  
Speaker: Axel Lorke  
(University of Duisburg-Essen)

18:00 *Dinner*

## ***Friday, August 11***

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08:00 *Breakfast*

08:50 **Lecture 11**  
Non-equilibrium structural dynamics  
Speaker: Aaron Lindenberg  
(Stanford University)

10:05 *Coffee break*

10:35 **Lecture 12**  
Quantum dynamics in spatio-temporally confined systems  
Speaker: Alfred Leitenstorfer  
(University of Konstanz)

12:00 *Lunch*

13:00 *Departure*