

Welcome and Logistics

Probing strong-field QED in electron-photon interactions

21-23 August 2018

DESY, Hamburg



HELMHOLTZ

SPITZENFORSCHUNG FÜR
GROSSE HERAUSFORDERUNGEN

Beate Heinemann

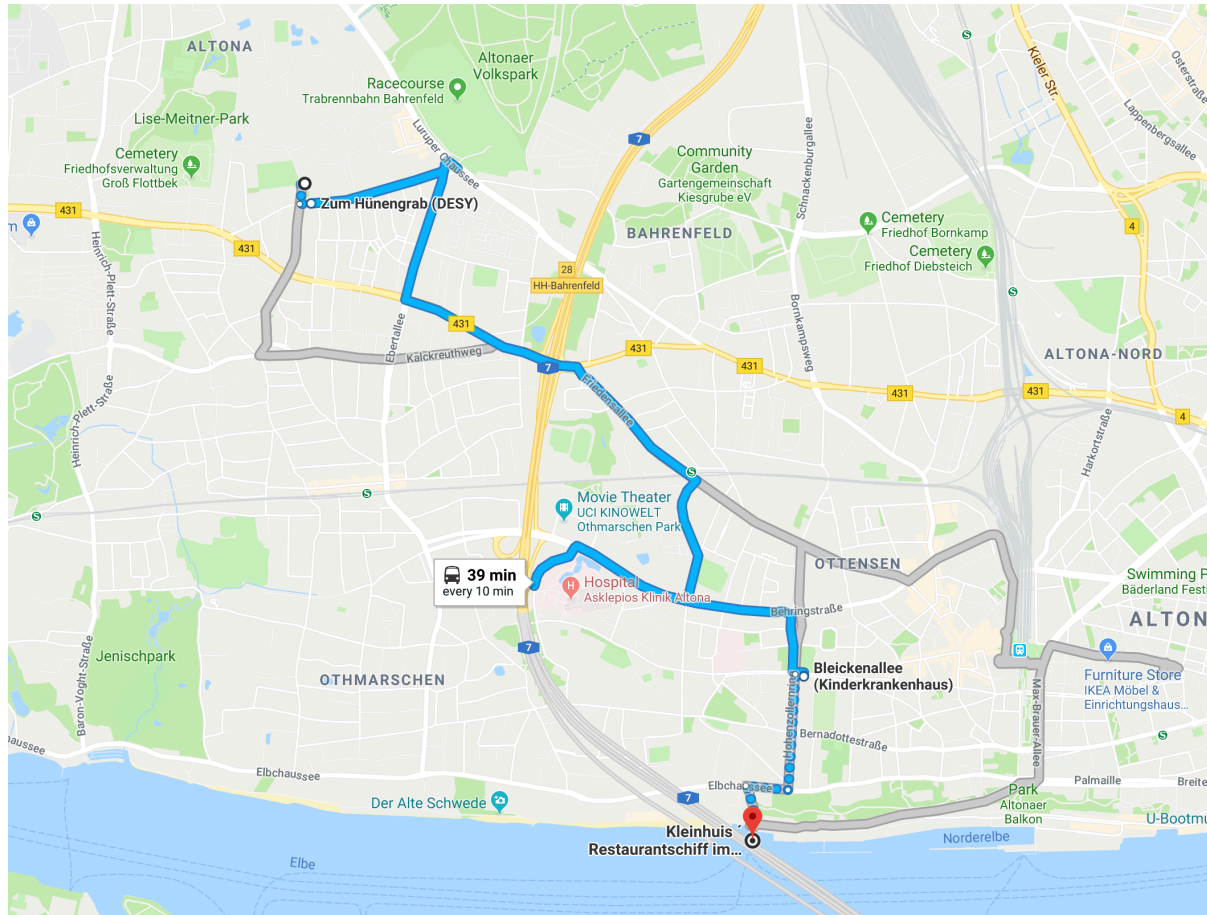
on behalf of the local organizing committee

(M. Hoffmann, S. Krohn, J. List, R. Matthes, D. Reis, M. Young)

Logistical information

- **Schedule** is tight
 - Speakers please stay within allocated time and upload talks well in advance
 - Questions on talk upload: jenny.list@desy.de or marius.hoffmann@desy.de
- **Conference fee receipts** will be made available today
- **Photograph:**
 - Today after morning session (before lunch) a picture will be taken at steps in front of main auditorium
- **Lunch:**
 - You have received vouchers for 5 Euros for lunch in the canteen on both days
- **Dinner** tonight at 7:30pm at <http://www.kleinhuis-restaurantschiff.de/>
 - Bus leaves at 7pm from parking lot near main auditorium
 - Session ends at 6pm
 - you can also find your own way and stroll along Elbe river and enjoy the weather
- **Hostel:** can be paid at checkout time
- **Friday:**
 - Tour of DESY at 10am (HERA, XFEL mock-up, ...) => If interested, contact Ramona.Matthes@desy.de
 - Time for informal meetings as needed (we have several rooms reserved)
- Any logistics questions: ask Ramona.Matthes@desy.de

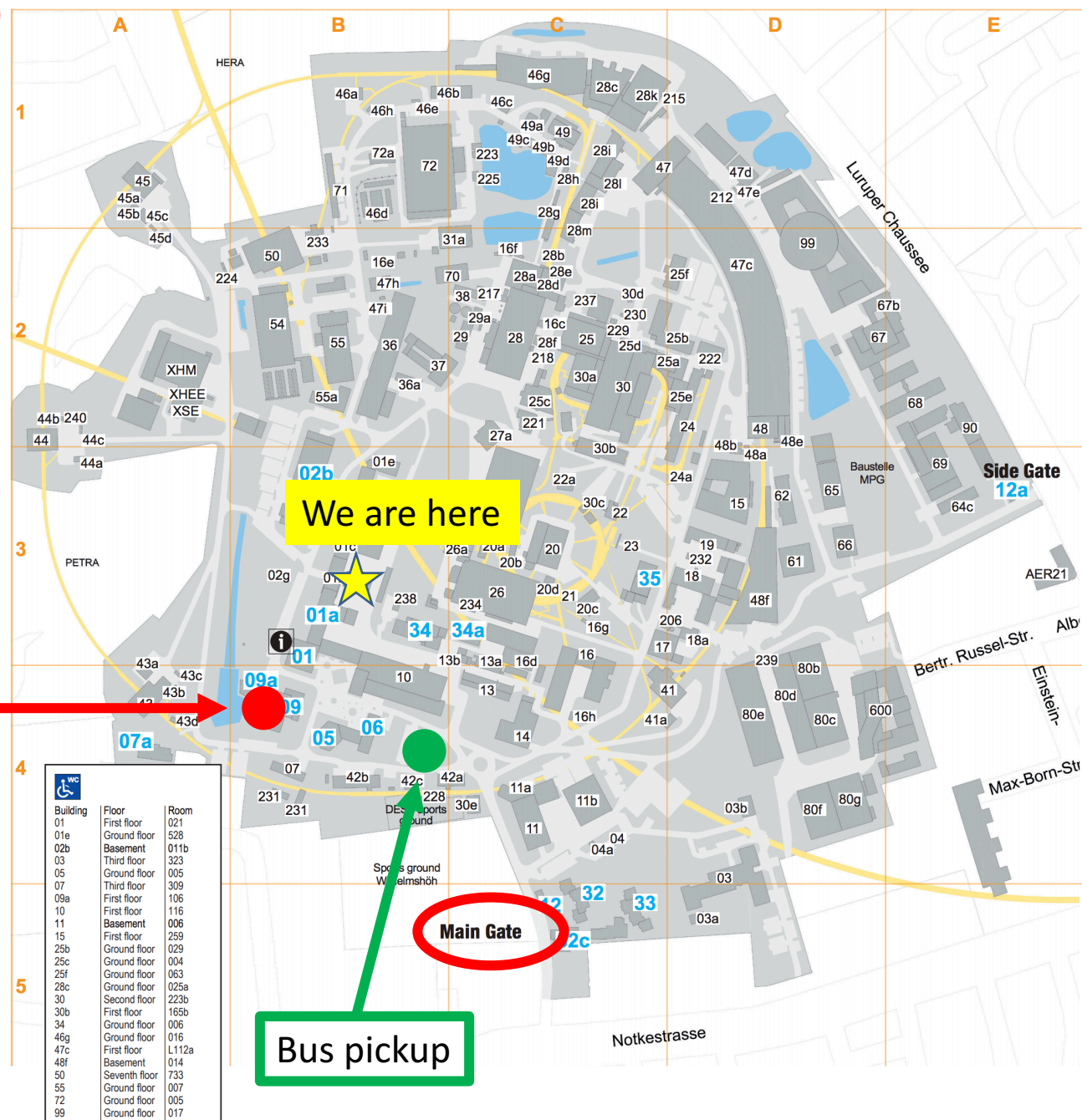
Dinner tonight: Kleinhuis restaurant in Oevelgoenne at 7:30pm



- Take bus at 7pm on site
- Or, use public transport
 - see google maps



- Laboratory 1 01-01e (B3)
Directorate 01 (B3)
Press and public relations 01 (B3)
Company medical officer 01a (B3)
Seminar room 3a-5 01b (B3)
Library 01d (B3)
Laboratory 2a, Theory 02a (B3)
Computer centre, UCO 02b (B3)
Radiation Protection D3 03 (D4)
Storage building 03b (D4)
Auditorium (DESY), entrance building 6 05 (B4)
Administration building 06 (B4)
Post, Guest services 06 (B4)
Administration building 07 (B4)
Guest house 8 07a (B4)
Canteen, cafeteria, bank 09 (B4)
Bistro 09a (B4)
Workshop 10 (B4)
Purchasing department 11 (C4)
Central warehouse 11a (C4)
Social counselling / works council 11a (C4)
Gate lodge Notkestrasse 12 (C5)
(main gate)
Gate lodge Luruper Chaussee 12a (E3)
(side gate)
Gas service 13a,b (C3)
Vacuum laboratory 14 (C4)
CSSB 15 (D3)
MKK / Power station 16 (C3)
Cooling plant DESY II 16d (C3)
Heating plant 17 (C3)
Site service yard 18,18a (D3)
Carpenters' building 19 (D3)
Synchrotron building 20 (D3)
Power house DESY 20c (C3)
LAOLA 22 (C3)
Laboratory of the Universities of Hamburg and Lübeck 22a (C3)
REGAE 23 (C3)
LINAC II 24 (D3)
PIA 24a (D3)
DORIS experimental hall 25 (C2)
Office and laboratory building EMBL 25a (C2)
FS office and laboratory 1 25b (D2)
Detector laboratory 25c (C2)
FS office and laboratory 5 & 2 25e,f (D2)
Experimental hall I / LINAC III 26 (C3)
FLA laboratory 26a (C3)
DESY testbeam / experimental hall II 27 (C3)
Testing area 27a (C2)
Experimental hall III 28 (C2)
Cryogenic hall 28a (C2)
FLASH tunnel 28b (C2)
FLASH experimental hall 28c (C1)
„Albert Einstein“ FLASH experimental hall 28k (C1)
„Kai Siegbahn“ FLASH2 undulator building 28i (C1)
FLASH laser hut 28g (C1)
Iron removal plant 29 (C2)
Accelerator control room (BKR) / SINBAD 30 (C2)
Supplying hall 30a (C2)
Accelerator operation building 30b (C3)
ARGUS detector 30e (C4)
Accelerator components building 31a (C2)
Guest house 2 32 (C5)
Kindergarten 32c (C5)
Guest house 3 33 (C5)
Training area 34 (B3)



- (C3) 34a School lab physik.begreifen
(C3) 35 Safety group / SAVE
communication engineering
(B2) 36 Preparation hall / experimental hall V
(B2) 37 Assembly hall
(C2) 38 Storage building
(C4) 41, 41a PETRA halls SO
(B4) 42, 42a-c PETRA halls S
(A4) 43, 43a-b PETRA halls SW
(A2) 44 PETRA halls W
(A1) 45, 45a-c PETRA halls NW
(B1/C1) 46a-c PETRA halls N
(C1) 46g PETRA III experimental hall „Paul P. Ewald“
(C1) 47 PETRA halls NO
(D1-2) 47c PETRA III experimental hall „Max von Laue“
(D1) 47d PETRA III cooling plant
(D2) 48, 48e PETRA halls O / EMBL
(D3) 48f PETRA III experimental hall „Ada Yonath“
(C1) 49, 49a Office and laboratory building
(B2) 50 HERA hall W
(B2) 54 Refrigeration technology hall (Cryogenic control room)
(B2) 55 Magnet measurement hall
(B2) 55a Proton vacuum building
(B2) 61-69 University Hamburg
(D3) 61 Auditorium (university)
(D3) 62 Institute of experimental physics
(D3) 65 Workshop
(D3) 66 HZG Helmholtzzentrum Geesthacht
(D3) 67 SALOME
(D-E2) 67-68 Institute of experimental physics
(E3) 69 Institute of laser physics
(C2) 70 Module test hall CMTB
(B1) 71 XTL mock up
(B1) 72 AMTF hall
(D4) 80b-g Storage buildings
(E2) 90 Centre for optical quantum technologies (ZOQ)
(D2) 99 CFEL
(E2) 90 Light & Schools (School lab)
(D2) 222 FS laser
(D/E4) 600 CHyN
(A2) 702 European XFEL entrance
(A2) 703 European XFEL modulator hall
(B2) 700 European XFEL injector entrance

Off-site buildings:
51 HERA hall N
52 HERA hall E
53 HERA hall S
(E3) AER21 Project management agency
(E4) NKS15 Finance department (Notkestr. 15)

Parking on the DESY premises is at your own risk. All city traffic regulations are valid and a speed limit of 30 km/h is allowed. Upon leaving the DESY premises random spot checks will be made at both gates. Please halt at the red traffic signal or the horn signal for inspection.

Scientific Programme

Scientific programme committee

Massimo Altarelli (Max Planck Institute for Structure and Dynamics of Matter)

Ralph Assmann (DESY)

Antonino Di Piazza (Max Planck Institute für Kernphysik, Heidelberg)

Anthony Hartin (DESY)

Ingmar Hartl (DESY)

Beate Heinemann (DESY and University of Freiburg, ex-officio)

Thomas Heinzl (University of Plymouth)

Thomas Koffas (Carleton University)

Jenny List (DESY)

Sebastian Meuren (Princeton University)

David Reis (Stanford University and SLAC)


Andreas Ringwald (DESY)

Matthew Wing (University College London, Chair)

Agenda

- Today:
 - Overview
 - Physics case
- Tomorrow:
 - Accelerators and Lasers
 - Detectors
 - Synergies

Agenda today

08:30 - 09:00	Registration		
09:00 - 12:25	Introduction/Overview <i>Session to give general overview over physics, experiment, laser and accelerator aspects</i> Conveners: Beate Heinemann (DESY and Freiburg University), Matthew Wing (UCL)	▼	
09:00	Welcome and logistics 10' Speaker: Beate Heinemann (DESY and Freiburg University)	▼	
09:10	The European XFEL accelerator and science programme 25' Speaker: Prof. Robert Feidenhansl (European XFEL)	▼	
09:40	The scientific interest in strong-field QED and electron-laser experiments 30' Speaker: Dr. Anton Ilderton (University of Plymouth)	▼	
10:15	The E144 experiment and lessons learned 20' Speaker: Kirk McDonald (Princeton)	▼	
10:40	Coffee 30'		
11:10	New ideas for high-energy electron/laser experiments 20' Speaker: Matt Zepf (HIJ)	▼	
11:35	Global high energy electron accelerators: present and future 20' Speaker: Vitaly Yakimenko (SLAC)	▼	
12:00	Overview of high-power lasers 25' Speaker: Georg Korn (ELI beamlines)	▼	
12:25 - 13:45	Lunch + photo		
13:45 - 17:55	Physics case <i>Talks on physics case (mostly theory talks)</i> Conveners: Dr. Thomas Heinzl (Plymouth University, School of Computing and Mathematics), Andreas Ringwald (DESY)		▼
13:45	Trident Pair Production in Laser Fields 15' Speaker: Mr. Greger Torgrimsson (Umeå/Chalmers)	▼	
14:05	Laser-Assisted Breit-Wheeler and Schwinger Pair Production 15' Speaker: Prof. Burkhard Kaempfer (HZDR)	▼	
14:25	Next great challenge beyond SLAC E144: probing a fully non-perturbative QED with electron-laser interaction 15' Speaker: Dr. Alexander Fedotov (National Research Nuclear University MEPhI)	▼	
14:45	QED processes at high intensities 15' Speaker: Stepan Bulanov	▼	
15:05	Quantum radiation reaction, e+e- pair production and acceleration in laser-electron beam scattering configurations 15' Speaker: Marija Vranic (IST, Lisbon)	▼	
15:25	Nonlinear trident pair production in an arbitrary plane wave: a focus on the properties of the transition amplitude 15' Speaker: Felix Mackenroth (MPI for Complex Systems) Material: Slides 	▼	
15:45	Coffee 30'		
16:15	Giant energy transfer from an electron bunch to a photon beam mediated by radiation reaction 15' Speaker: Matteo Tamburini (MPI Heidelberg)	▼	
16:35	Massive scalar and pseudoscalar production in electron-laser collisions 15' Speaker: Dr. Ben King (Ludwig-Maximilians-Universität München)	▼	
16:55	Laser-Matter Interactions at High Intensity: Theoretical Challenges 15' Speaker: Mattias Marklund (Gothenburg)	▼	
17:15	All optical signatures from the quantum vacuum 15' Speaker: Holger Gies (Friedrich-Schiller University Jena)	▼	
17:35	Relevance of laser-based experiments for probing hidden particles 15' Speaker: Dr. Selym Villalba-Chavez (Institut für Theoretische Physik I, Heinrich Heine Universität Dusseldorf)	▼	
19:30 - 22:00	Dinner		