

International Workshop on  
**SiC defects for quantum technology**  
December 7 - 8, 2017  
Helmholtz-Zentrum Dresden-Rossendorf

Organizers:

Georgy Astakhov (University of Würzburg)

Shengqiang Zhou (HZDR)

Adam Gali (Wigner Research Centre for Physics, Budapest)

**Thursday, December 7, 2017 – Building 801 Room P142**

14:30 Welcome (light lunch, coffee)

**Session 1: Defect functionalization**

**Chair: Shengqiang Zhou**

15:00 Georgy Astakhov (University of Würzburg and HZDR)  
*Defect engineering using proton beam writing*

15:15 Victor Soltamov (Würzburg University)  
*Polytype control of defect spins*

15:30 Milos Nesladek (IMEC and Hasselt University)  
*Photoelectric readout and coherent manipulation of defect spins*

16:00 – 16:15 Coffee break

**Session 2: Quantum sensing with defects**

**Chair: Milos Nesladek**

16:15 Adam Gali (Wigner Research Center for Physics, Budapest)  
*Ab initio theory of defects*

16:30 Alex Retzker (Hebrew University of Jerusalem)  
*Polarization of the silicon vacancy defects in SiC*

17:00 Roland Nagy (University of Stuttgart)  
*Optical properties of single dichroic defects*

17:15 Massimo Camarda (Paul Scherrer Institute)  
*4H-SiC membranes for X-ray detectors and QT applications*

17:30 – 17:45 Coffee break

### Session 3: SiC Quantum Sensing – project discussion

**Chair: Adam Gali**

17:45 – 19:00

**Dinner together**

20:00 – 22:00

### Friday December 8, 2017 – Building 801 Room P142

8:00 Pickup by mini-Bus from the main railway station (HBF, south side)

### Session 4: SiC growth and nano-engineering

**Chair: Caspar van der Wal**

9:00 Gregor Hlawacek (Ion Beam Center at HZDR)  
*Helium microscopy capabilities at IBC*

9:15 Nguyen Tien Son (Linköping University)  
*Growth and isotope purification of SiC*

9:30 Fulvio Mancarella (CNR-IMM, Bologna)  
*Technology for photonic crystals*

9:45 Michael Trupke (University of Vienna)  
*Scalable photonic and spin control interfaces for qubits in crystals*

10:00 Eva Weig (University of Konstanz)  
*Nanomechanical resonators: How tensile stress affects the mechanical quality factor*

10:15 – 10:30 Coffee break

### Session 5: Optical control of defects

**Chair: Michael Trupke**

10:30 Guido Burkard (University of Konstanz)  
*All-optical defect spin control and holonomic quantum gates*

11:00 Caspar van der Wal (University of Groningen)  
*Optical coherent control of defect spins and technology for wave guide devices*

11:30 Cristian Bonato (Heriot-Watt University, Edinburgh)  
*Optical spectroscopy of Si vacancies in SiC at low temperatures*

11:45 Mohamed Bourennane (Stockholm University)  
*Single photon source for quantum information processing*

12:00 – 13:00 Lunch

### Session 6: SiC Quantum Communication – project discussion

**Chair: Georgy Astakhov**

13:00 – 14:00

Free discussion and departure