DPG - Advanced School on Physics

supported by the Wilhelm und Else Heraeus-Foundation

Nanoantennas and Hybrid Quantum Systems

September 25th – September 30th, Physikzentrum Bad Honnef, Germany

Harald Giessen (Univ. Stuttgart) & Stefan Maier (Imperial College, London)

Invited Speaker

Rainer Hillenbrand, San Sebastian
Annemarie Pucci, Heidelberg
Niek van Hulst, Barcelona
Bert Hecht, Würzburg
Mikael Käll, Göteborg
Rudi Bratschitsch, Chemnitz
Javier Garcia de Abajo, Madrid
Javier Aizpurua, San Sebastian
Oliver Benson, Berlin
Jörg Wrachtrup, Stuttgart
Romain Quidant, Barcelona
Rick Ziolkowski, Arizona
Andrea Alu, Austin
Christophe Caloz, Montreal
Nader Engheta, Pennsylvania
Olivier Martin, Lausanne
Lukas Novotny, Rochester
Vahid Sandoghdar, Zürich

Topics

Mid-infrared nanophotonics based on antennas and transmission lines
Surface Enhanced Infrared Absorption Spectroscopy using plasmonic nanoantennas
Controlled coupling of single photon emitters and nanoantennas
Properties of single crystalline optical antennas
Nanoantennas and applications for sensing
Nonlinear optics of plasmonic nanoantennas
Deterministic single-photon/plasmon generation in waveguides
Close encounters in nanoantennas
Single defect centers as nanoprobes in plasmonics and photonics
Controlling the interaction between single quantum systems and plasmons
Nanoantenna sensing and nanoantenna-assisted trapping
Microwave, THz and optical metamaterial-engineered electrically small antennas

Abstract:
Plasmonic nanoantennas have recently gained tremendous attention in the field of nanooptics. Antenna theory from the electrical engineering perspective and its transfer into the optical world, impedance matching, light concentration, emission and reception enhancement as well as increased directionality, tailoring of the local density of states, coupling to quantum emitters such as quantum dots and NV centers, the Purcell effect near nanoantennas, nonlinear effects, visible as well as near- and midinfrared applications, nanomanipulation of objects with light forces near nanoantennas, enhanced nonlinear optics, as well as antenna-enhanced sensing are subjects of current interest.

The school aims at graduate students as well as postdocs at all levels. The speakers are world leaders in their field and will present introductory and overview lectures. The participants are encouraged to submit posters in order to stimulate lively discussions.

Fees:
Covering full board and lodging at the Physikzentrum Bad Honnef
475 € (for DPG members 375 €)
for students 315 € (for DPG members 215 €)
without lodging 210 €.

Application & more information:

www.pbh.de

Physikzentrum Bad Honnef

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