DFG-SPP: Electrodynamic Metamaterials

Program, June 27, 2005
Bad Honnef, Germany

---------- **09:00 – 10:30** ----------

Introduction

- Dr. Michael Kleinschmidt, DFG Bonn, "DFG-Schwerpunktprogramme", 10 min.
- Prof. Dr. Harald Giessen, Universität Stuttgart, "Welcome", 5 min.
- Prof. Dr. Martin Wegener, DFG-CFN, Universität Karlsruhe (TH) and Prof. Dr. Harald Giessen, Universität Stuttgart, "Electrodynamic metamaterials: Introduction and overview", 20 min.

Linear regime: Negative-refractive-index and magnetic metamaterials

- Prof. Siegmund Greulich-Weber, Universität Paderborn, "Composite-materials with negative permittivity and negative permeability in GHz and THz spectral range", 5 min.
- Prof. Dr. Wolfgang Menzel, "A frequency scanned antenna using a left-handed transmission line and related structures", 5 min.
- Prof. Dr. René Beigang, TU Kaiserslautern, "THz plasmonic crystals", 5 min.
- Prof. Dr. Oleksandr Zhumromskyy and Dr. Ekaterina Shamonina, Universität Osnabrück, "Near field imaging and near field manipulation with metamaterials: from MHz to optical and UV", 5 min.
- Dr.-Ing. Rolf Schuhmann, TU Darmstadt, "Analysis of metamaterials by 3D-field simulation and applications in microwave engineering", 5 min.
- Prof. Dr. Kurt Busch, Universität Karlsruhe (TH), "Numerical simulations and analytical modeling of plasmonic and negative index materials", 5 min.
- Dr. Stefan Linden, Forschungszentrum Karlsruhe, "Towards metamaterials with a negative index of refraction at optical frequencies", 5 min.

---- **Coffee break and posters** ---- **10:30 – 11:00** ----------

---------- **11:00 – 12:30** ----------

- **Invited Talk:** Prof. Dr. Mark Stockman, Georgia State University (U.S.A.), "Coherent, nonlinear, and active nanoplasmonics", 20 min.
- Dr. Thomas Klar, LMU München, "Optical metamaterials containing gold nanoparticles: Is a negative index feasible?", 5 min.
- Frank Garwe and Ulf Bauerschaefer, IPHT Jena, "Elongated gold nanostructures in silica for metamaterials: Theory, technology and optical properties", 5 min.
- Dr. Sven Burger, Konrad-Zuse-Institut Berlin, "Numerical investigation of metamaterials", 5 min.
- Prof. Dr. Boris Chichkov, Laser Zentrum Hannover, "Plasmonics and metamaterials at the LZH", 5 min.
- Prof. Dr. Philip Russell, University of Bath, "Ways to control resonance and anti-resonance in photonics", 5 min.
- Dr.-Ing. Peter Waldow and Dr.-Ing. Rens Baggen, IMST GmbH Kamp-Lintfort, "Roadmap for future metamaterial research", 5 min.

---- **Lunch** ---------- **12:30 – 14:00** ----------

---------- **14:00 – 15:30** ----------

- Prof. Dr. Michael Giersig, CAESAR Bonn, "Fabrication of nanoscale rings, dots and rods by shadow nanosphere lithography", 5 min.

<u>Linear regime:</u> Comparison with other negative refraction phenomena

- Dr. Joachim Herrmann, MBI Berlin, "Optics in Photonic Crystals", 5 min.

<u>Linear regime:</u> Sensing applications

- Dr. Paul Miclea and Prof. Dr. Ralph Wehrspohn, Universität Paderborn, "SERS-spectroscopy with magneto-optic nanowire arrays", 5 min.
- Prof. Dr. Mikhail Charmonine, Fachhochschule Regensburg, "Waveguides and sensors based on metamaterial elements", 5 min.

Nonlinear regime:

- Dr. Tineke Stroucken and PD Dr. Torsten Meier, Universität Marburg, "Microscopic theory for the nonlinear optical properties of metamaterials", 5 min.
- Dr. Ernst-B. Kley and Prof. Dr. Falk Lederer, Universität Jena, "Spatio-temporal control of ultrashort optical pulses in nonlinear metamaterials", 5 min.
- Dr. Christoph Lienau (MBI Berlin) and Prof. Dr. Erich Runge (TU Ilmenau), "Ultrafast dynamics of surface plasmon polariton excitations in plasmonic metamaterials", 5 min.

Quantum regime:

- Prof. Dr. Tilman Pfau, Universität Stuttgart, "Quantum optics experiments with metamaterials", 5 min.
- Prof. Dr. Harald Giessen, Universität Stuttgart, "Metamaterials and their interaction with excitons", 5 min.
- Prof. Dr. Michael Fleischhauer, TU Kaiserslautern, "Metamaterials and modified spontaneous emission", 5 min.
- Prof. Dr. Hans Kroha and Dr. Dimitry Chigrin, Universität Bonn, "Propagation of light in structured media with absorption or gain: Transport theory and numerical simulations", 5 min.

---- Coffee break and posters ---- 15:30 – 16:00 ----------

---- Final discussion ---------- 16:00 – 17:00 ----------

---------- **Posters** ----------

- Dipl.-Ing. Axel Rumberg, Universität Stuttgart, “Negative-index materials for optical communications”
- Prof. Dr. Heinz Schweizer, Universität Stuttgart, “The transmission line approach for optical left-handed materials”
- Prof. Dr. Alfons Stahlhofen, Universität Koblenz, „Reflection at metamaterials“
- Prof. Dr. Gerd Leuchs, Universität Erlangen, “The prospect for negative refraction based on custom designed molecules”
- Prof. Dr. Gero von Plessen, RWTH Aachen, “Planar metallo-dielectric metamaterial structures for the visible range”
- Dr. Georg Bastian, Universität Karlsruhe (TH), “Metamaterials comprising organic luminescent materials”
- Dipl.-Ing. Otto Simon, Universität Duisburg-Essen, “Metamaterials and antennas”
- Prof. Dr. Lukas Eng, TU Dresden, “Metamaterials in the Eng group“
- Prof. Dr. Remigius Zengerle, TU Kaiserslautern, “Dispersion engineering and imaging in hybrid metamaterials”
- Dr. Jens Güdde, Universität Marburg, “Detection of coherent currents on metal surfaces”