Lecture course announcement

Theoretical Nanooptics

A more algebraic approach to electromagnetism

The course will cover a formulation of electromagnetism using linear spaces of Maxwell fields. The program includes:

- The Riemann-Silberstein fields: $\mathbf{E} \pm i\mathbf{H}$
- Linear operators for Maxwell fields
- Symmetries and conservation laws
- Light-matter interactions and the scattering operator

Some particular applications will be treated, including backscattering minimization using nanoparticles, and directional coupling of emitters into waveguides.

The information about the course can be found in the campus system under this link. In particular:

- **When:** WS 2022/2023. Every Thursday 14:00-15:30. Starts October 27st.
- **Where:** 30.22 Raum 229.4
- **Other information:**
    - The lectures will be given in English
    - Useful background: Maxwell's equations, Hilbert spaces
    - The tutorials will be given by Mr. Maxim Vavilin

Examination:

- "Schwerpunktfach" and "Nebenfach" Master of Physics students: No examination
- "Ergänzungsfach" Master of Physics students and KSOP students: Oral examination
- The oral examination will be held within two weeks after the end of the lecture period.

The course is worth **6 credits**:

- KSOP or "Nebenfach": 50% of the exercises to be solved correctly.
- Attendance certificate ("Schein"): 50% of the exercises to be solved correctly.
- "Schwerpunktfach" or "Ergänzungsfach": Mandatory participation in the tutorials.

Dr. Ivan Fernandez-Corbaton and
Prof. Dr. Carsten Rockstuhl