

Seminar

Raman Scattering in Silicon

Since Integration platforms of photonic and photo-electronic components have recently received increased attention the investigation of silicon waveguides became crucial. Using silicon as waveguide material includes specific nonlinear effects such as Raman scattering. The student's task is to understand and describe the basic principle, the origin, and the counteracting processes of Raman scattering.

[1] [B. Jalali, V. Raghunathan, D. Dimitropoulos and O. Boyraz, "Raman-based silicon photonics"](#)

[2] Q. Lin, Oskar J. Painter, and Govind Agrawal, ["Nonlinear optical phenomena in silicon waveguides: Modeling and applications"](#)

[3] D. Dimitropoulos, R. Claps, Y. Hand, and B. Jalali, ["Nonlinear optics in silicon waveguides: stimulated Raman scattering and two-photon absorption"](#)

Prerequisites

Lecture: Optical Communication Systems

Advisors

Ulrike Höfler