Speaker: **Giacomo Sorelli, Fraunhofer Institute for Optronics, System Technology and Image Exploitation – IOSB, Ettlingen**

Title: **Resolving optical sources at the quantum limit**

Date: **Monday, April 29th, 15 o‘clock (s.t.)**

Place: **Seminar room 915**

Title: **Resolving optical sources at the quantum limit**

Abstract:

In this seminar, I will focus on the problem of resolving two light sources. While historical criteria, e.g. that of Reyleigh or Abbe, are based on diffraction, recent results based on quantum metrology showed that separations far below the diffraction limit can be achieved when the optimal measurements and the optima data processing tools are employed.

I will start by presenting theoretical tools to compute the ultimate quantum limits, and to design optimal estimators that are reliable even in presence of imperfections. I will then report on the experimental estimation of the separation between two incoherent sources with a sensitivity 5 orders magnitude below the diffraction limit.