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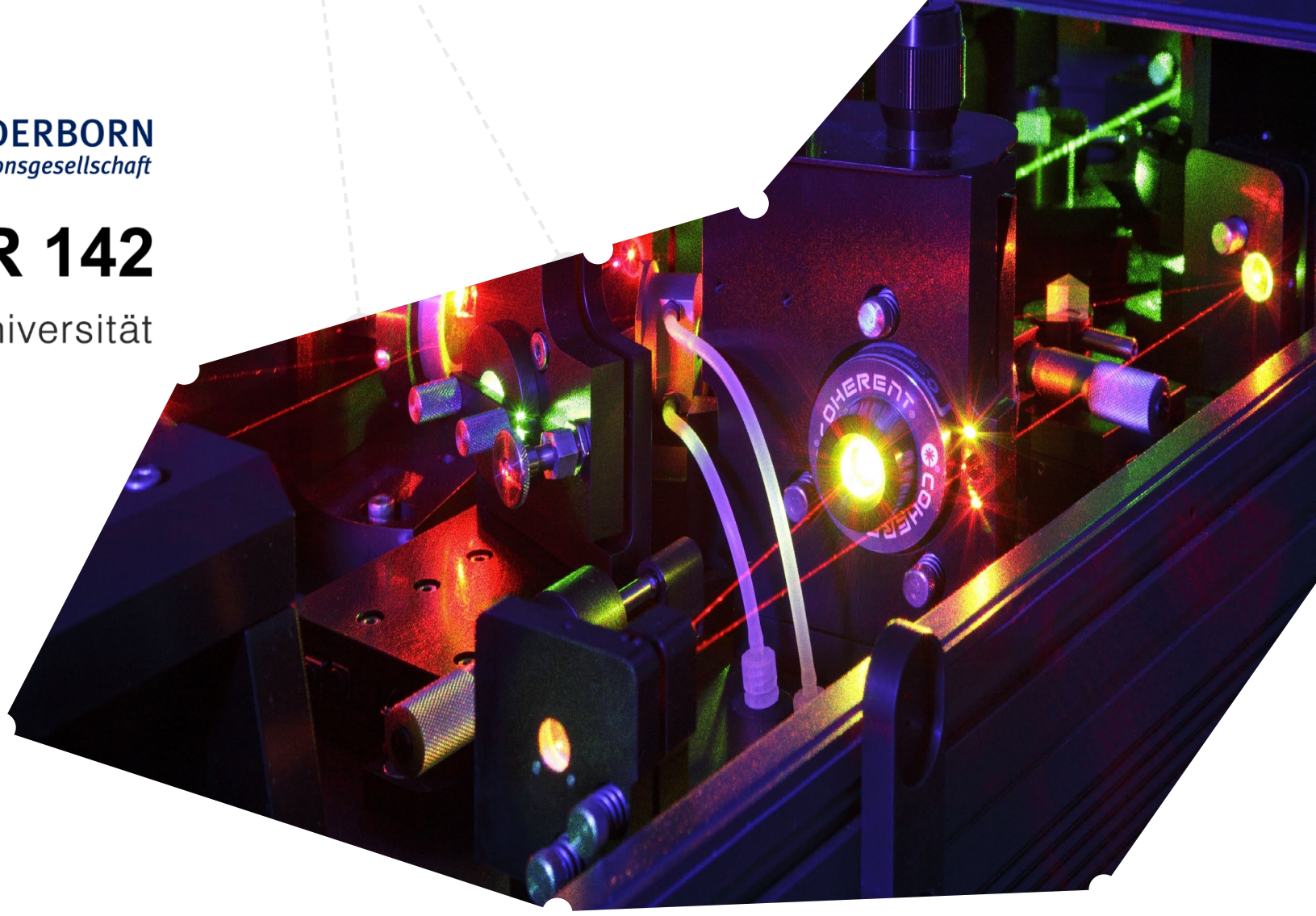

PADERBORN PHOTONICS LECTURE

WEDNESDAY, JUNE 7TH 2023 | 16:00 H

PROFESSOR ZHE YU JEFF OU

LECTURE HALL A.2

Quantum Entangled Interferometers and Their Applications

A new type of quantum interferometer utilizes nonlinear parametric processes as the wave splitting and recombination elements. Because of the nonlinear interaction, the fields inside the interferometer are intrinsically entangled and quantum mechanically correlated. This type of quantum correlated interferometer exhibits some unique properties that we will review in this talk. Because of these properties, this type of interferometer is superior to traditional beam splitter-based interferometers in many aspects. We will present its various forms and its realizations with different types of waves such as microwave, atomic waves (both internal and external degrees), and sound waves. We will discuss its applications in quantum metrology, quantum imaging, quantum spectroscopy, and quantum state engineering.

Professor Zhe Yu Jeff Ou
City University of Hong Kong