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Ph.D. Program in Electronics, Computer Science and Electrical Engineering

SEMINAR

Magneto-optic materials: what else can we do besides optical isolation?

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Time: 02/05/2023 – 10.30

Seminar Room “Magenta”

Zoom : <https://us02web.zoom.us/j/2686146304>

Abstract: Magneto-optic (MO) materials have traditionally been used to produce optical isolators, which are essential for limiting back-reflection in lasers. However, these materials possess unique properties that offer potential for several unexplored applications in integrated photonics. By controlling an external magnetic field, we can change the refractive index of MO materials and induce non-reciprocal properties. This characteristic can be leveraged to create a new class of optical components with exceptional performance and capabilities. In this talk, I will showcase new MO components that can expand the potential of integrated photonics. By integrating MO materials onto a silicon photonic chip, we can explore previously uncharted territories in the field. The resulting device opens up new opportunities for magnetic sensing, cryogenic photonics, and optical computing. The discussion will provide a detailed explanation of the unique properties of MO materials, the design and fabrication of these new optical components, as well as their applications in the field.

Bio: Paolo Pintus is an Assistant Professor at the University of Cagliari, Italy and a Project Scientist at the University of California Santa Barbara, USA. He received a Ph.D. with honors in Telecommunication Engineering from the Scuola Superiore Sant’Anna in Pisa, Italy in 2012. He has filed 7 international patents and he is the author and co-author of more than 100 scientific journals and conference papers. His research interests include integrated optics, silicon photonics, and computational electromagnetics. Dr. Pintus is a Senior Member of the IEEE Society and IEEE Photonic Society, and a member of the Italian Society for Industrial and Applied Mathematics.

Organizer

Prof. Cosimo Lacava

Ph.D. Coordinator

Prof.ssa Ilaria Cristiani

The seminar will be held in English
For more information please contact cosimo.lacava@unipv.it