Title: Integrated photonics for aerospace and data/telecom applications
Speaker: Dr. Nicolás Abadía
Time: 60 min

Abstract: The talk will introduce integrated photonics for aerospace and data/telecom applications and present several devices designed in silicon and compound semiconductors. I will summarize my participation in a pan-UK project, The Future Compound Semiconductor Manufacturing Hub, and my projects 1. EP/X011917/1 - Photonic Integrated Modulators for Aerospace and Data/Telecom, and 2. EP/Y00082X/1 - Efficient Integrated Photonic Phase Shifters for Data/Telecom and Quantum Applications.
I will present my latest results in developing gallium arsenide-based devices and systems for aerospace and data/telecom applications. You can follow my group in
1. Academia.edu (https://cardiff.academia.edu/Nicol%C3%A1sAbad%C3%ADa)
2. LinkedIn (https://linkedin.com/in/nicol%C3%A1s-abad%C3%ADa-9032a422a)
3. ResearchGate (https://www.researchgate.net/profile/Nicolas-Abadia).

Silicon Photonics:
Due to the increasing Internet traffic, there is a need to upgrade current optical networks. One of the research lines to meet this demand is implementing phase modulation formats that increase the number of bits per symbol in the optical link, E.g., the Dual-Polarization Quadrature-Phase Shift Keying (DP-QPSK). I will present a novel and very compact silicon TE-pass polarizer (https://doi.org/10.1364/OE.26.030292) in this part.

III-V:
A highly fabrication-tolerant polarization beam splitter implemented in the InP platform will be presented in this part (https://doi.org/10.1364/OE.25.010070). This part will introduce my current projects: 1. EP/X011917/1 - Photonic Integrated Modulators for Aerospace and Data/Telecom, and 2. EP/Y00082X/1 - Efficient Integrated Photonic Phase Shifters for Data/Telecom and Quantum Applications.

Biography: Nicolás Abadía received a Telecommunications Engineering degree from the Technical University of Madrid and the Royal Institute of Technology. Afterward, Nicolás obtained a joint M.Sc. in Photonics at Ghent University, the Royal Institute of Technology, and the Free University of Brussels. Dr. Abadía pursued his Ph.D. degree at the University of Paris-Sud, working in collaboration with CEA-Leti. Nicolás was a joint postdoctoral fellow at Trinity College Dublin and McGill University, working on III-V and silicon photonics devices and systems in partnership with Ciena, Lumentum, and Western Digital.
Dr. Abadía is currently an assistant professor at Cardiff University and the Institute for Compound Semiconductors with research interests including integrated photonic devices and systems in III-V, silicon, and silicon nitride platforms for aerospace and data/telecom.
Dr. Abadía has received several international recognitions, including the 2016 OSA Outstanding Reviewer Recognition, the SPIE Optics and Photonics Education Scholarship, and the Erasmus Mundus Scholarship; as well as national recognitions such as the Dr. César Milstein Grant and the best thesis award by the Official College of Telecommunication Engineers and the Spanish Association of Telecommunication Engineers.