

Eamonn Murphy

European Space Agency, Noordwijk, The Netherlands

A passive and active SiN technology platform for space optoelectronics

The gravitationally clean environment of space presents a unique laboratory for testing physics to new limits and to develop commercial systems for eventual service exploitation. In fact space can sometimes be the ideal operational environment to fully exploit the potential of some of these systems. However, with these opportunities come great challenges to engineer complex bulk systems, nominally developed for terrestrial use, to function reliably over potentially extensive mission lifetimes. To be able to apply, and benefit, from the heritage of CMOS process engineering for these new systems in space would be a hugely enabling step. In the past years the field of Integrated Photonics has taken profoundly important steps to emulate the CMOS approach. In the past decade ESA has been very fortunate to benefit from the SiN expertise at EPFL, and its very successful spin-offs, as we try to plan together for the next important steps utilising the specific EPFL SiN technology platform. This short presentation will discuss some of the completed steps, those ongoing and those in the exciting early stages of evaluation and planning for use in space.