

Photonics applied to interferometric instrumentation for astrophysics, practical experience and prospects

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Talk abstract: This talk will present how the use of photonics devices properly meets the requirements of the combination of coherent beams for interferometry in astrophysics. A first part will remind the main development actions that were carried out to achieve operable instruments. A second part will describe some existing or under construction instruments that benefit from photonics devices. The last part will contemplate more prospective directions, pushing the concept for fully integrated instrument, up to an on chip-detection.

Speaker biography: Pierre Kern, Optical Engineer from Ecole Supérieure d'Optique / ORSAY, is an instrumentalist at LAOG / CNRS in Grenoble. After his PhD thesis at DESPA (Observatoire de Paris-Meudon) for the realization of the first adaptive optics system for large telescope in astronomy, he joined LAOG for the development of instruments dedicated to high angular resolution in Astronomy (Interferometry and Adaptive Optics). He was involved in the realisation of related instruments, mainly for the ESO Very Large Telescope (NAOS and AMBER). Since early 90s he promotes the use of integrated optics devices to solve critical issues of astronomical instrumentation due to the complexity of the required setup, firstly by the development of miniaturized deformable mirrors and then for the use of integrated optics for the beam combination of interferometric arrays of telescopes.