

International Conference on

LASERS, OPTICS AND PHOTONICS

July 25-26, 2018 | Osaka, Japan

PILOT optical alignment

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PILLOT is a balloon-borne astronomy experiment designed to study the polarization of dust emission in the diffuse interstellar medium in our Galaxy at wavelengths 240 μm and 550 μm with an angular resolution of a few arc-minute. Pilot optics is composed an off-axis Gregorian type telescope and a refractive re-imager system. All optical elements, except the primary mirror, are in a cryostat cooled to 3K.

We combined the optical, 3D dimensional measurement methods and thermoelastic modeling to perform the optical alignment. I will present the system analysis, the alignment procedure, and finally the performances obtained during the second flight in March 2017.

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