

## **PAPYRUS : the experience of a pyramid WFS onsky**

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The PAPYRUS bench is an adaptive optics system mounted at the 1.52 m telescope of Observatoire de Haute Provence (OHP, France) since June 2022. It makes use of a pyramid wavefront sensor (WFS) in the visible band and of a  $17 \times 17$  deformable mirror. The main objectives of the bench are:

- to test new AO concepts, mainly through the work of PhD students, such as the estimation of the so-called optical gains of the non-linear pyramid WFS.
- to test AO components thanks to collaborations. PAPYRUS has then become a test bench for the Durham AO real-time computer under the tough seeing conditions of the OHP.
- to offer a sky access to scientific instruments. The fiber injection module of PAPYRUS allows to connect the bench to infrared fiber-fed spectrographs.
- to offer to students the unique opportunity to run an AO system onsky during multiple summer schools happening at the OHP.

The easy access to an AO system onsky has provided a huge boost forward for the AO community and its collaborators. The pressure on PAPYRUS even increased since the telescope will be decommissioned in less than one year in order to receive the future 2.5 m telescope PROVIDENCE. For this presentation, we summarize the activities and the performances reached by PAPYRUS in the last years. This feedback of the onsky experience is a step to prepare both the moving of PAPYRUS to another telescope and the PROVIDENCE adaptive optics system.