Cascade Adaptive Optics with non-modulated Pyramid WFS

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Abstract

In this presentation, based on recent results published in JATIS, we explain the principle of a Cascade Adaptive Optics (CAO) system with two stages and present its temporal and frequency domain analysis. We consider a standard configuration where the 1st stage is running at 1 kHz with a high-order Shack-Hartmann WFS (SHWFS) and the 2nd stage at 4 kHz features a low-order non-modulated Pyramid WFS (PWFS), both loops being controlled by an integrator. We show the improvement brought by the PWFS over the SHWFS, and assess performance of the global CAO system in terms of contrast and speckle life-time.

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