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Venue:Telescopium (old) Auditorium, 12:00-13:00, 6th June 2014

Title:
Field tests of elongated Sodium LGS wave-front sensing at the E-ELT scaleWavefront sensing using extremely elongated Sodium Laser Guide Stars

Abstract
Laser Guide Star (LGS) is of key concern for the design of a number of first generation E-ELT AO modules. One of the main challenges is the mitigation of the effects induced by extreme elongation on the wavefront measurements. A sodium (Na) LGS wavefront sensing on-sky experiment at this scale seems mandatory to provide spatial and temporal wavefront measurements on a true Na LGS, subject to the turbulence and mesospheric variabilities.

We propose to use CANARY, the Multi-Object AO demonstrator installed at the WHT (4.2m), already equipped with a number of Rayleigh LGS and natural guide star WFS. We propose to do the experiment in collaboration with ESO.

The Wendelstein Laser Guide Star Unit, the compact and transportable laser system developed at ESO, shall be positioned at a varying distance from the WHT providing off-axis launching (up to 40m), simulating the whole range of LGS spot elongations obtained on the E-ELT. In addition, this experiment will include synchronized Sodium profiling and will allow open and close-loop operations. In the talk, we present the objectives and the current design of the proposed experiment.