

SF2A - Session 08

Titre : "Knowing your limits"

Abstract :

The different types of high-contrast imaging techniques are all confronted to the finite size of the aperture but react in different ways, resulting in various trade-offs between the minimum separation, the flux ratio, and the system efficiency with which close companions such as exoplanets may be observed.

I will compare how well a few techniques can help approaching the  $\lambda/D$  limit with the explicit objective of feeding a spectrograph with the light of a companion at a known location. I will consider phase and amplitude apodization and focal phase mask coronagraphs, together, or as a combination.

I will also assume realistic conditions to confront the imaging limit in a real-life setting, using the ELT pupil as a baseline, in addition to adaptive optics residuals based on the expected performance of classical and extreme adaptive optics system.

This is part of a design study for the planetary camera and spectrograph instrument.