Imaging through turbulence a long quest of innovative computational photography in astronomy

Abstract:

The astronomical community's largest technical challenge is coping with the earths atmosphere. In this talk, I will present the popular methods for performing scientific measurement from the ground, coping with the time dependant distortions generated by the earths atmosphere. We will talk about the following topics:

1) Scientific motivation for eliminating the effect of the atmosphere.
2) The statistics of turbulence - the basis for all methods is in deep understanding of the atmospheric turbulence
3) wave-front sensing + adaptive optics - A way to correct it in hardware.
4) lucky imaging + speckle Interferometry - Ways to computationally extract scientifically valuable data despite the turbulent atmosphere.