

NUMERICAL ANALYSIS AND SCIENTIFIC COMPUTING  
COLLOQUIUM

*Blind Image Restoration in Modern Ground-Based Astronomy*

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**Abstract:** Driven by the never-ending quest for better resolution, ground-based astronomy continues its march toward using telescopes with larger and larger apertures. Current large aperture (8m-10m) telescopes will soon be eclipsed by 30m-50m behemoths. However, as with any telescope with an aperture of more than about 0.3m, realizing the full resolving power of these telescopes requires the combined use of adaptive optics compensation and image restoration (due to turbulence in the Earth's atmosphere). Because the characteristics of the image blur are typically unknown, blind deconvolution, where both the target object and the blurring function are estimated from the observed data, is the restoration technique of choice.

I will give an overview of blind deconvolution and describe some recent advances that allow us to obtain high-quality imagery under turbulence conditions which, up until now, have been thought unsuitable for high-resolution imaging.

Thursday, November 3, 2011, 4:00 pm  
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