

Breakout Session

Science Precursor Roadmap

- John Monnier and Guy Perrin
- A supporting cast of thousands...

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Science Precursor Roadmap

- Objective: Frame Science Roadmap for Interferometry Development for Next 10-15 Years (Next Decadal Survey)

Required/Demonstrated Capabilities (1 of 2)

- Imaging (& Dynamic Imaging) [CHARA,NPOI,MROI,VLTI]
 - “Complex” scenes [~ 100 s of pixels over a narrow (~ 0.5 arcsec?) field]
 - *Imaging of the inner 1AU of a T Tauri disk at 300/1 dynamic range*
 - Phase-referenced/high-sensitivity imaging [VLTI, any US analog?]
- Improved Sensitivity [All]
 - (e.g. Phase Referencing/Coherent Fringe Tracking) [VLTI, KI, ...]
 - Throughput/Optimizing Current Facilities
 - Address technical limitations of existing facilities [KI, VLTI, LBTI]
 - Address concerns of quiet big apertures
 - *Wavefront Sensing & Control [As possible unifying heading for tech-related issues]*
- High Spatial Freq/Long Baseline (~ 1 km – OHANA?)
 - *Resolving the apparent size of nearest T Tauri star (TW Hya?)*
- LBTI/Fizeau/Image-plane combination [LBTI]
 - *Imaging of GM Aur & AU Mic Disk in scattered light at K,L,M?*
- Nulling [KI & LBTI]
 - 1000/1 (?) starlight suppression on ground
 - *Survey of 50 potential TPF targets at 1000/1 contrast at 10 μ m*

Required/Demonstrated Capabilities (2 of 2)

- Astrometry Program [VLTI, NPOI + KI???]
 - *200 solar neighborhood stars over 5 years*
 - *30 μ as precision*
 - *Unique discovery space & real result*
- Adaptive Optics
 - Effective Visible AO (to allow effective use of big aperture)
 - AO on 1-2 m class telescope
- Sensitive (V \sim 10-12) Visible & Mid-IR (3-5 μ m; L \sim 9) Operation
 - *L & M V^2 Survey of 100 YSO disk sources in Taurus*
- Site Testing [Antarctica and others] for Next-Gen Array
- *Greater-US Community Access to existing facilities (TSIP-like program) through NOAO*
- Queue Scheduling/Automated/Efficient Operation/Non-Expert
- Data Archiving Demonstrated
- User-Friendly Operations
- Software Tools & Data Standards

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