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# SALT RSS-NIR MID-TERM REVIEW MAY 20 & 21, 2009

CALIBRATION

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MARSHA WOLF UNIVERSITY OF WISCONSIN













- Designed to simulate same vignetting pattern as that seen by celestial object observations
- To provide calibration for first generation instruments through  $\lambda=0.9~\mu m$
- Light-shaping diffuser screen and Fresnel lenses modify the beam to illuminate the detectors in the same manner as a uniform sky
- Lamp light is injected through liquid light guides
- Lamp complement:
  - hollow cathode CuAr, ThAr
  - penray Ar, Hg, Xe, Ne
  - QTH flat field lamps
- Changing entrance pupil effects are accounted for by employing a moving exit pupil baffle, which can simulate the pupil geometry of a specific track

(Buckley et al., 2008, SPIE, 7014, 70146H-1)

**RSS-NIR MTR** 



#### **MOVING BAFFLE**





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(Buckley et al., 2008, SPIE, 7014, 70146H-1)

**RSS-NIR MTR** 



# DIFFUSER SCREEN AND FRESNEL LENSES



- Both made of UV-transmitting acrylic
  - total thickness = 6.1 mm
  - transmission shown below

long λ cutoff of typical sky-limited spectroscopic observations



**RSS-NIR MTR** 





### WAVELENGTH CALIBRATION



Instrument	Wavelength Calibration
NIFS (AO)	sky lines, Ar
Flamingos-2	Ar
MOSFIRE	sky lines
OSIRIS (AO)	sky lines, pipeline solution
MOIRCS	sky lines
X-shooter	Ar, Kr, Xe, Ne
LUCIFER	Ar, Kr, Xe, Ne
	Instrument NIFS (AO) Flamingos-2 MOSFIRE OSIRIS (AO) MOIRCS X-shooter LUCIFER



- SALT has Ar, Xe, Ne lamps
- Spectroscopy fine with these lamps, still evaluating Fabry-Perot needs
- Replace an existing lamp with a combination lamp and add Kr
  - e.g. replace Ar with Hg-Ar (standard penray), or get a custom Ar-Ne lamp



#### FLAT-FIELDING



- Existing QTH lamps good in the NIR
- Use existing system for injecting the lamp light with proper vignetting signature
- Stay away from dome flats because high chance of light leaks into instrument at prime focus, close to the screen