

Solar System Observations

- Wide-field imaging surveys
 - Cadence critical
 - sensitivity (usually requires very broad-band)
- Spectroscopic studies
 - usually a single object
 - long-slit occasionally
 - IFU relevant only in special cases
- Photometric or imaging studies
 - usually time-domain
 - usually targeted to single object

Solar System Observations

- Most science that can be done is supported by current or planned instruments.
- Some instruments not relevant (eg., MOSFIRE or HYDRA).
- Future needs require innovative operating or observing modes.

Enabling Concepts

- Guiding/tracking as an “instrument”
 - non-sidereal tracking
 - fast rates
 - non-linear rates
 - long arcs
 - time dependent motions
 - efficient (ie., transparent) setup and operation
- Simultaneous broad wavelength coverage
 - limited observing window
 - insensitive to rotational modulation
- Low solar elongation observations
 - Mercury, Venus

Guiding/Tracking Case 1

Spectroscopy of Miranda

- Goal is high-SNR optical or IR spectra
 - implies long integration times
 - accurate slit placement
 - variable slit alignment (or insensitive to bright field object)
 - dithering without loss of target
- Operational steps
 - load ephemeris (10 minute interval)
 - GO (automatic interpolation, tracking rate)
 - Guide lock (rate already loaded)
 - update tracking rate on 10 minute interval
 - focal plane motion supported by metrology of guider calibration