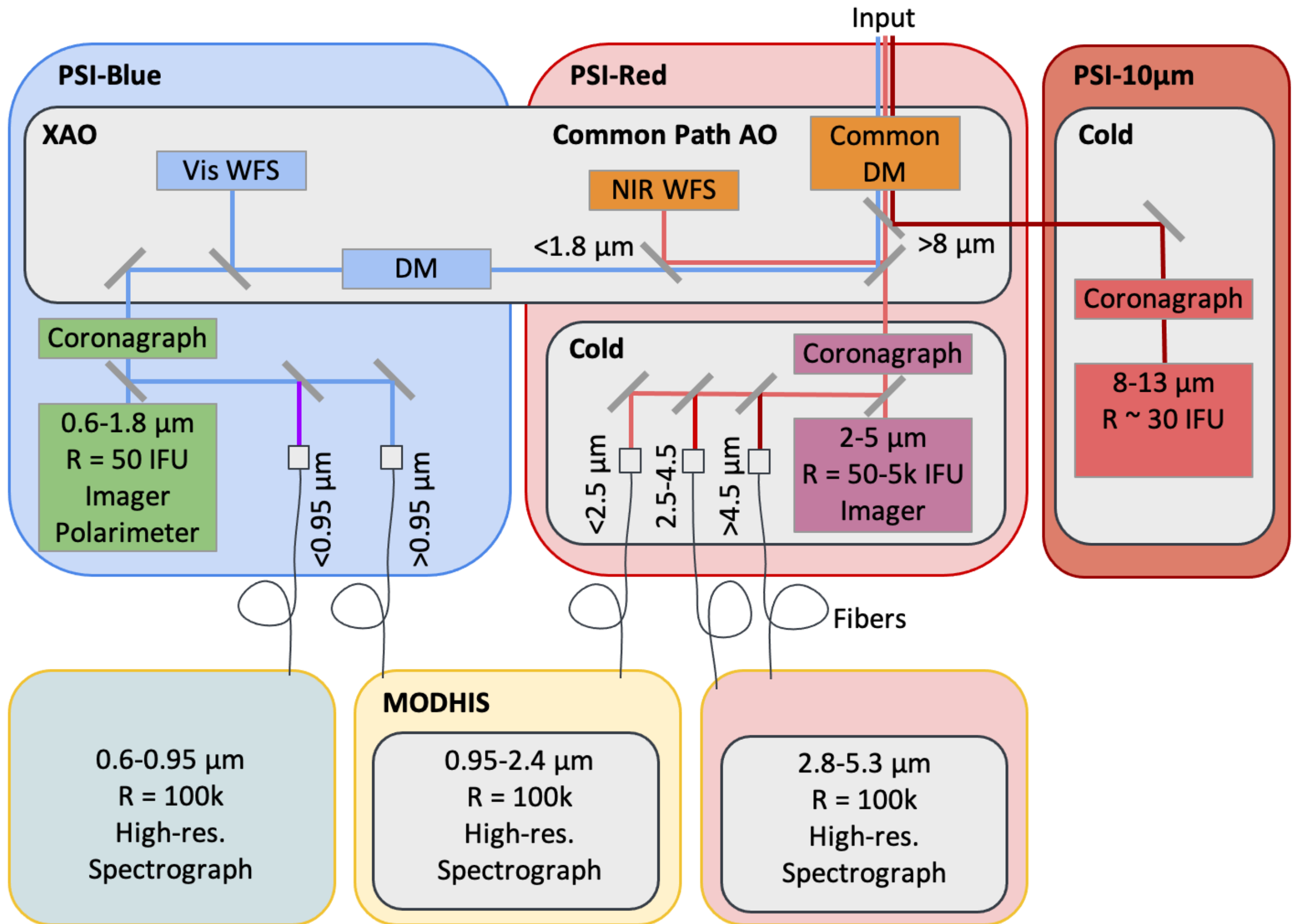


# **Summary of TMT second-light instrument modes**

**Please, provide ranking or feedback by Jan 8, 2021 to TMT SAC member Stan Metchev ([smetchev@uwo.ca](mailto:smetchev@uwo.ca))**



# MICHI Summary

Requirement	Value	Requirement	Value
<b>Operational <math>\lambda</math> range</b>	L (3.4-4.1 $\mu\text{m}$ ), M (4.6-4.8 $\mu\text{m}$ ), N (7.3-13.8 $\mu\text{m}$ )	<b>Imager plate scale</b>	11.9 mas pixel <sup>-1</sup> at L&M, 27.5 mas pixel <sup>-1</sup> at N
<b>Long-slit spectrometer plate scale</b>	11.9 mas pixel <sup>-1</sup> at L&M 27.5 mas pixel <sup>-1</sup> at N	<b>Long-slit spectrometer resolution</b>	R~600 L, M, & N bands
<b>High-res. spectrometer plate scale</b>	11.9 mas pixel <sup>-1</sup> at L&M 27.5 mas pixel <sup>-1</sup> at N	<b>High-res. spectrometer resolution</b>	R~120,000 at L&N, R~100,000 at M
<b>IFU spectrometer (baseline)</b>	LM or N band (only) 10 spaxels, 35.0 mas spaxel <sup>-1</sup>	<b>IFU spectrometer resolution</b>	R~1,000
<b>Polarimetry (baseline)</b>	L, M, N	<b>Polarimetry modes</b>	Imaging & long-slit spectrometry

# HROS concept overview

- Single object mode: (FOV~10" Diameter)
  - R=100000 (0.2" fiber)
  - R=100000 - high stability mode using pupil-slicing, octagonal fibers & double scramblers ,
  - R=50000(0.4" fiber )
  - High throughput mode using slit and image-slicers (R=20000, 40000)
- Multiobject mode at R~25000 (FOV ~ 20' diameter) - M3 feeding severely constraints this mode
  - 1" fiber, 6-objects - complete wavelength coverage, ~40 objects with narrow wavelength coverage using order blocking filters and etalons