

High Energy Astrophysics and Cosmology in the era of all-sky surveys



Wide Field Survey Telescope (WFST): Overview and Recent Progress

On behalf of the WFST team

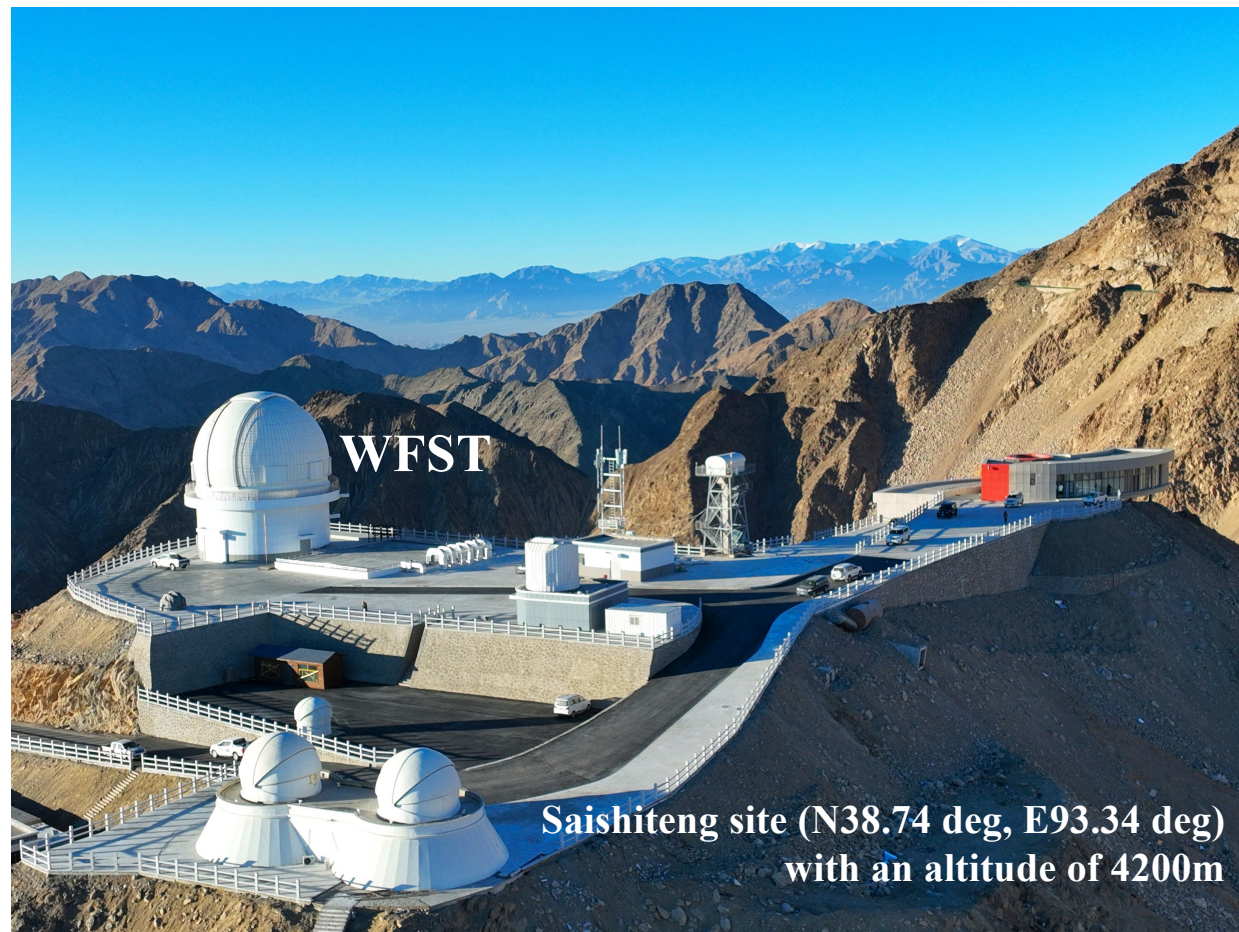
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Outline

- ◆ Why WFST?
- ◆ WFST Overview
- ◆ Key Science of WFST
- ◆ Recent Progress
- ◆ Summary

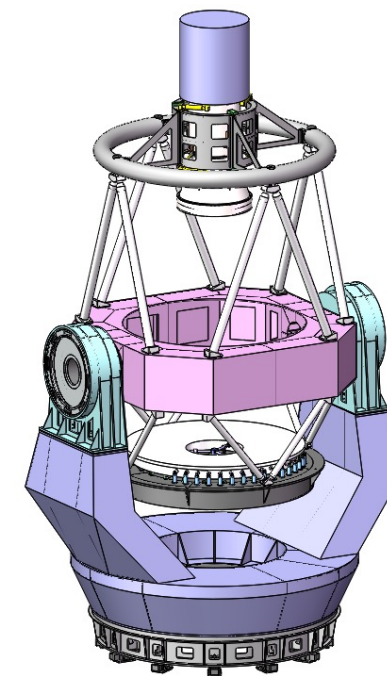


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WFST | WIDE FIELD SURVEY TELESCOPE

Top-level specifications for WFST

Item	Specifications
Optical Configuration	Prime-focus with corrector lenses
Aperture	2.5 m diameter
Focal Length	6.2 m
Focal Ratio	F/2.48
Field of View	3 deg diameter, 6.55 sq. deg
Etendue	29.3 m ² deg ²
Wavelength	320 ~ 960 nm (ugriz,w)
Image Quality	Diameter \leq 0.4 arcsec (80% E.E.)
Plate Scale	33 arcsec/mm
Pixel size	10 μ m \times 10 μ m
# of Pixels	0.765 Giga (0.73G in FoV)
Survey Depth	r ~ 23 @ 30s exposure



5. Summary

WFST is a Powerful Survey Machine in the Northern Hemisphere

- ◆ **High sensitivity**
 - ◆ Large collection area ($D = 2.5\text{m}$, no secondary mirror)
 - ◆ Less scattering background light
 - ◆ **High u-band throughput** + high-altitude site: @ 4200m
- ◆ **High quality imaging** (seeing-limited)
 - ◆ With atmospheric dispersion corrector (ADC)
 - ◆ With distortion corrector (distortion $< 0.1\%$ at edges)
 - ◆ Homogeneity of image quality ($80\% < 0.4''$)
- ◆ **High Survey Power**
 - ◆ $A\Omega = 29.3$ (Pan-STARRS1: 13.5, SDSS: 5.9/25.3, LSST: 308)
 - ◆ Survey speed $6000\text{sq}^\circ/\text{night}$ @ 30s exposure
- ◆ **Being producing more and more exciting scientific results**



Looking for International collaboration, especially follow-up **spectroscopic observation** cooperation!

Thank you for your attention!

Science with the 2.5-meter Wide Field Survey Telescope
(WFST): <https://arxiv.org/pdf/2306.07590>

