The SNAP Telescope

The SNAP Collaboration

Three-mirror anastigmats

Wide flat field
All reflector, no refractive corrector
Easily folded to conserve space
Convenient focal surface location
9 d.o.f - 6 constraints = 3 adjustables
highly elastic design
Annular field for maximum sky coverage

SNAP Requirements

Aperture: 2 meters
Field: 1 sq degree
Cover 0.35 to 1.7 um
Diffraction limited >1um
Flat focal surface
Stray light << Zodiacal
Must fit launch shroud
Must survive launch

Design Features

Lightweight Primary mirror
All-CFRP structure
Tripod secondary support
Transverse tertiary axis
All mirrors 290K
Metering structure 290K

Transverse Rear Axis

Located behind primary
Shortest possible layout
Encloses fold mirror & tertiary
Dark isothermal enclosure
Rigid metering structure
Side Gigacam location
Passive detector cooling

Performance

Two meter aperture
f/10.8; EFL=21.66m
1.37 sqdeg annular field
mean geometric blur 2.5um RMS
= 6um FWHM = 0.06 arcsec FWHM
Compare: SiCCD 10.5um pixel
or HgCdTe pixel 18.5um
Airy disk (1um) =
13umFWHM = 0.12arcsecFWHM
20% obstruction sec'y + spider

http://snap.lbl.gov

The Dumbell Nebula, taken with the LBNL CCD Image from NOAO/AURA/NSF
Copyright WIYN Consortium, Inc., all rights reserved

SNAP is supported by the US Department of Energy
Office of Science, Division of High Energy Physics