AO Instrumentation for the Gemini Telescopes

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AO Systems Do Science
ANU AO Instruments for Gemini

- **Gemini South Adaptive Optics Imager (GSAOI)**
  - Gemini South (Chile)
  - Multi-Conjugate AO system

- **Near-infrared Integral Field Spectrograph (NIFS)**
  - Gemini North (Hawaii)
  - ALTAIR “classical” AO system + LGS
Gemini 8 m Telescopes
GSAOI – Diff.-Limited Imager
GSAOI Optical Design

RMS wavefront error < 65 nm
GSAOI Curvature WFS

Concave lens

Convex lens
Four HAWAII-2RG (4080x4080)
GSAOI Guide Star Geometry
NIFS – Diff.-Limited Spect.
Integral Field Spectroscopy

Integral Field Unit

Spectrograph

3"

Mirrors

slit

0.1"

60 km/s
Irregular Galaxies in the HDF
NIFS Data Format

- 29 slitlets
- 2048 pixels
- 3"

[Diagram showing the structure of NIFS data format with annotations for slitlets, pixel count, and size.]
NIFS IFU Concept
Monolithic diamond fly-cut mirror (LFM, Uni. of Bremen)

60 mm _ 4.5 mm
- www.mso.anu.edu.au/nifs
- www.mso.anu.edu.au/gsaoi