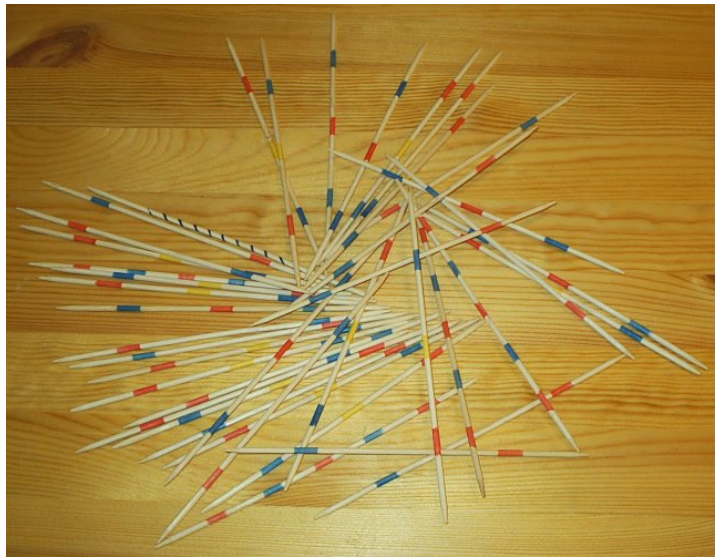
MICADO

"The Mikado", an operetta written by Gilbert & Sullivan in 1885

Mikado is the common name of Syngonanthus chrysanthus

Mikado is a pick-up-sticks game (aka Jackstraws or Spillikins)



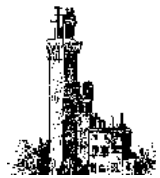
MICADO

*M*CAO *I*maging *C*amera for *D*eep *O*bservations

Phase A Study

consortium

MPE	Garching, Germany
MPIA	Heidelberg, Germany
USM	Munich, Germany
OADP	Padova (INAF), Italy
NOVA	Leiden, Gronigen, Dwingeloo (ASTRON), Netherlands



Aim

Design a simple & robust near-IR imaging camera, ready early on, primarily for MCAO but also compatible with GLAO, LTAO, etc.

Board of Directors

R. Genzel, H.-W. Rix, K. Kuijken, A. Renzini, R. Bender

Key Roles

Principal Investigator	R. Genzel (R. Davies)
Project Manager	R. Davies
Project Scientist	A. Renzini (R. Falomo)
Instrument Scientist	T. Herbst
Systems Engineer	M. Thiel (L. Barl)
Optics	R. Ragazzoni, F. Eisenhauer
Mechanics	G. Kroes
Electronics	A. Hess
Software	B. Muschielok (M. Wegner)
Data Flow	E. Valentijn

Also Starring

L. Tacconi, D. Lutz, F. Eisenhauer, N. Forster Schreiber, M. Feldt, K. Jahnke, L. Greggio, E. Held, L. Bedin, G. Piotto, R. Saglia

Science Cases

building on science cases from E-ELT Science Working Group

• Galactic Center	R. Genzel
• YSOs, outflows, disks	M. Feldt, T. Herbst
• High mass star formation	T. Herbst, M. Feldt
• Globular cluster astrometry	G. Piotto
• Globular cluster photometry	G. Piotto
• Star formation histories	L. Greggio
• Deep, faint, photometry	E. Tolstoy
• Galaxy Cores	R. Bender, R. Saglia
• Dwarf Spheroidal Kinematics	K. Kuijken
• QSO environments	R. Falomo
• QSO host galaxies at high z	H.-W. Rix, K. Jahnke
• Structure of high z galaxies	M. Franx
• High-z resolved colour mapping	N. Forster Schreiber
• High-z emission line mapping	N. Forster Schreiber

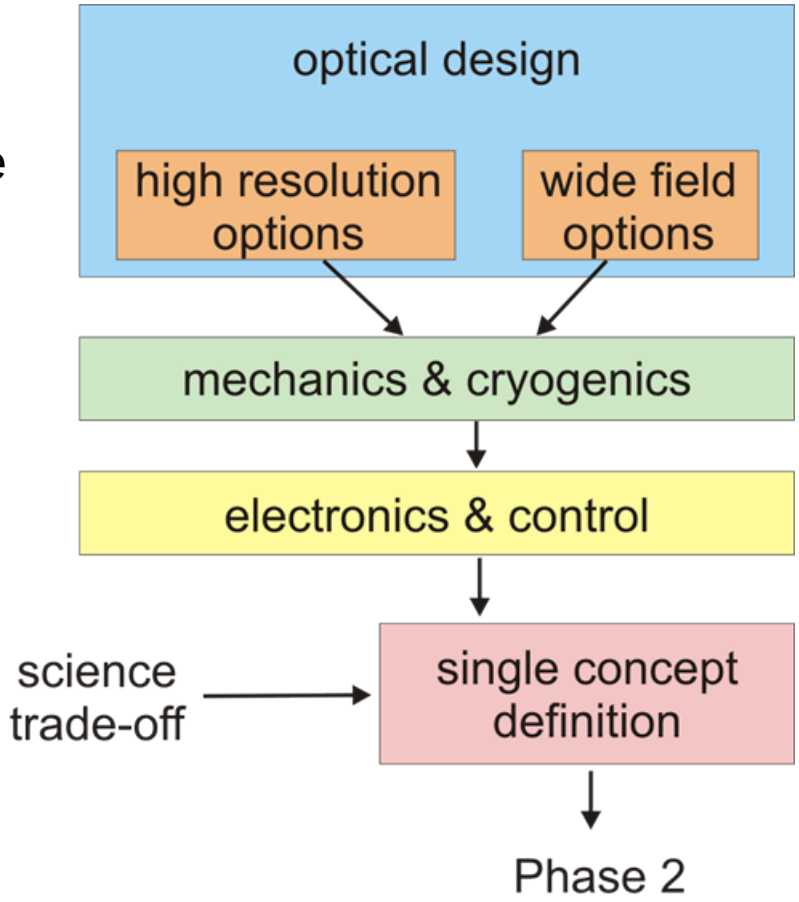
Science Trade-Off

- Spatial/Spectral properties – pixel size, field of view, wavelength coverage, etc.
- Filter sets
- Importance of photometry, astrometry, sensitivity, spatial resolution, image fidelity
- PSF calibration
- Impact of science for different AO performance
- Impact with other AO techniques (GLAO, LTAO)
- Impact of other operational telescopes

the results of this trade-off will be used to drive
the camera design via Top Level Requirements

Technical Trade-Off

simple option:
image focal plane



complex options:
zooming,
simultaneous multi-colour

trade-off:
cost, complexity, risk, manufacturability, maintenance, how well science requirements are met

Schedule & Milestones

Phase A-1	2008	Jan	first MICADO meeting
		Feb	signing of Agreement
		Oct	Instrument Concept Definition from scientific and technical trade-off studies
	2008	Dec	Instrument Concept Selection Review
Phase A-2	2009	Jan	Start of advanced Phase A Conceptual Design
	2009	Sep	Phase A Review

One possible MICADO concept

basic configuration:
3x3 4k^2 detectors, ~4mas pixels, covering 48”×48”

zoom optics
over some or all of field:
e.g. 1, 2, & 4mas/pix

inner channel:
removable dichroics with
2 to 4 4k^2 detectors for
simultaneous multi-colours