The Liverpool Telescope

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http://telescope.livjm.ac.uk/

Liverpool Telescope

- Φ 2.0 metre f/10 RC
- Φ Robotic
- Φ up to 5 instruments
- Φ 40% PATT (UK)
- Φ 30% LJMU
- Φ 20% CAT (Spanish)
- Φ 5% international
- Φ 5% Science and Society
- Φ OPTICON TNA

Reliability

Productivity

Demand

PATT oversubscription
Demand Factor
3.5
3
2.5
2
1.5
1
0.5
0
2007A
2008B
2008A
2008B
2009A
Semester

Instrumentation Plan: Generation 1

Name	FOV	Resolution	Wavelength	Description	Date
RATCam	4.6’	0.14”/pix	u’-z’	imager	2004
SupIRCam	1.7’	0.4”/pix	JH	imager	2005
RINGO	4.2’	0.28”/pix	V+R	polarimeter	2006
MEABURN	10”	3Å / pix	1500Å	spectrograph	2007
RISE	10’	0.6”/pix	V+R	Fast timing	2008

Instrumentation Plan: Generation 2

Name	FOV	Resolution	Wavelength	Description	Date
IO (optical)	10’	0.15”/pix	u’-y’	Wide imager	2009
IO (IR)	6’	0.2”/pix	r’-H	tip-tilt imager	2010
RINGO2	4.2’	0.28”/pix	V+R	Faint obj pol.	2011
FRODOSpec	10”	0.5Å / pix	7000Å	Faint obj spec	2009
?	?	?	?	?	2012

Science with the LT

Highlights I: Exoplanets

Highlights II: Gamma Ray Bursts

Highlights III: Supernovae

Highlights IV: Other Areas

Highlights V: Science and Society

- National Schools Observatory
  - 973 schools
  - 11926 observations
  - Queens Award
  - A. C. Clark nomination
- IYA 2009
  - London Launch Event
  - French TV documentary
  - 2009 CCI allocation
  - Royal Institution

Strategic Aims 2009 - 2014

- Maximize scientific productivity
- Review and update science strategy in light of current and future instrumentation plans
- Increase engagement with non-LT users
- Understand long-term (post 2015) plans and implications for any upgrades needed before then.

Development Programme

- FRODOSpec commissioning
- IO ("Infrared-Optical")
- RINGO2
- New User Front End
- Support Building

10

I camera

- HAWAII-2RG
  - 2048 x 2048 18 micron pixels
  - 1.8 micron cutoff
  - Substrate removed
    - QE>70% 0.4 - 1.0 microns
    - QE>80% 1.0 - 1.8 microns
  - Dark current < 1 e^- / sec
  - Guide window functionality to generate tip-tilt signal

O camera

- Fairchild CCD486 BI array
- 4096 x 4096 15 micron pixels
- Dark current < 0.02 e^- /sec
- Read noise < 10 e^-

Tip-tilt and offset mirror

- Off the shelf PI S-340 pizeo platform with gold plated BK7 mirror
  - Maximum tilt 12’
  - Tilt resolution 0.04”
  - f = 200Hz

- I detector provides guide signal
  - 15-20 Hz bandwidth

Summary

- Telescope reliable and productive
- Robotic operation makes some difficult to execute science routine.
- Strong instrument development programme will keep us competitive
- http://telescope.livjm.ac.uk/