5.2 Cambridge Team (CAM)

Team Leader	Dr. Richard McMahon
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Staff	Name	Degree	Status	%	Work Package
1.	Andrew Bunker	PhD	Postdoc	10	1.6
2.	Carolin Crawford	PhD	Fellow	10	1.4, 2.3
3.	Rachel Johnson	PhD	Postdoc	30	1.3, 2.1, 2.2, 2.5, 3.2
4.	Craig Mackay	PhD	Lecturer	5	2.2, 2.5, 3.2
5.	Richard McMahon	PhD	Lecturer	10	1.6, 2.4, 3.2, 3.11
6.	Ian Parry	PhD	Lecturer	10	1.2, 2.1, 2.2, 3.2, 2.5
7.	Postdoc	PhD	Postdoc	15	1.6, 2.4, 3.2
8.	Stephen Smartt	PhD	Fellow	10	1.2, 2.4

Local team description :
The Cambridge Instrumentation group is part of the Institute of Astronomy - a Cambridge University department with some 60 post-doctoral staff and 20 research students.

The instrumentation group has significant experience building 3D instruments. Former projects include Spiral-A (optical integral field spectroscopy at the AAT) and COHSI (near-infrared integral field spectroscopy for UKIRT). The instrument currently under construction is the successor to COHSI - CIRPASS. CIRPASS is a fibre-fed near-infrared (JH) spectrograph with a 499 element integral field unit. It is a very versatile instrument and can be adapted to different telescopes by changing the simple fore-optics. CIRPASS will be commissioned on Gemini in the last quarter of 2001 and will be available for community use from early 2002. The group is also involved in the design of GOHSS (Galileo) and FMOS (Subaru). We are also building the non-3D instrument DAZLE, designed to observe very high redshift galaxies.

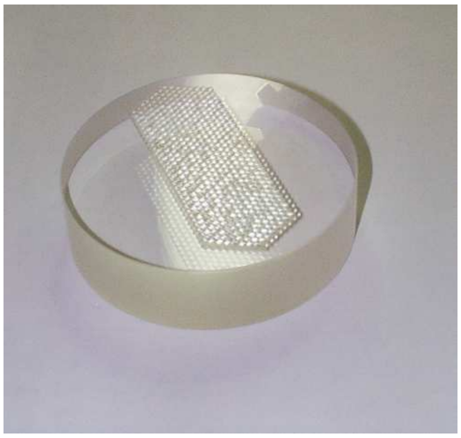
The Cambridge team are developing quick-look data reduction software for CIRPASS which will be sufficient for basic analaysis. More complex data analysis software will be required to carry out CIRPASS science programmes. We are particularly interested in crowded field 3D spectroscopy (especially accurate background subtraction), developing line fitting software and mosaicing 3D images.

The science interests of the Institute of Astronomy are wide-ranging, and many will benefit from 3D instrumentation. Particular research interests in the context of the 3D network include high redshift galaxies (spatially resolved star formation in $1 < z < 2$ galaxies, identification of damped Ly_{α} systems), active galaxies (imaging of extended line emission, ULIRGs), resolved stellar populations (crowded field spectroscopy of high mass stars in collaboration with AIP) and normal galaxies (dynamics of central regions).

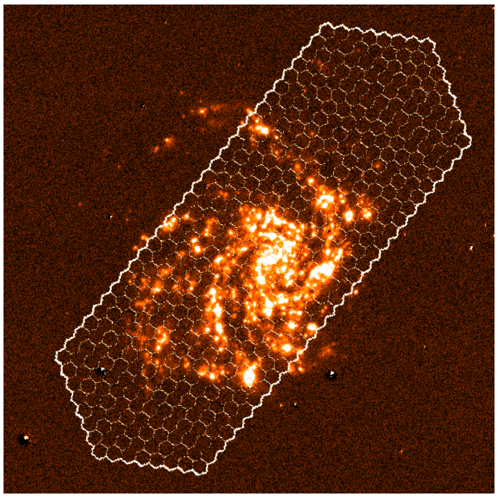
Significant recent publications :

Ian Parry, Craig Mackay, Rachel Johnson, Richard McMahon, Andrew Dean, Anamparambu Ramaprakash, David King, Jim Pritchard, Steve Medlen, Chris Sabbey, Richard Ellis, Alfonso Aragn-Salamanca, 2000, "*CIRPASS: a NIR integral field and multi-object spectrograph*", SPIE, Vol. 4008, p. 1193 - 1202.

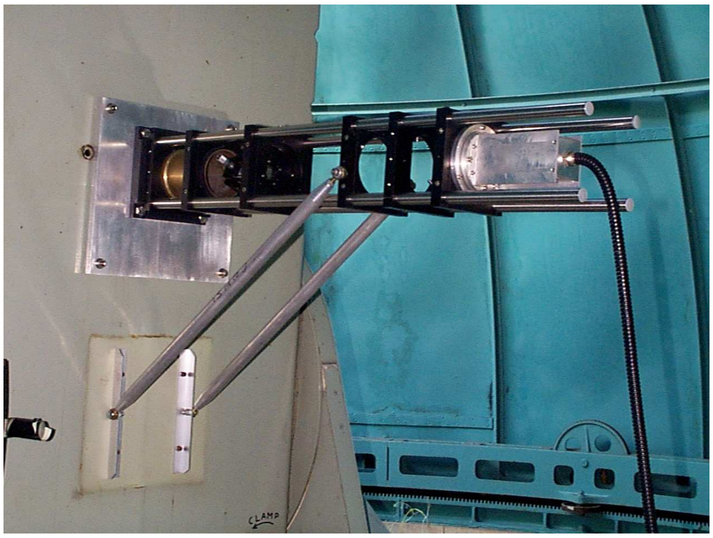
Kenworthy, Parry and Taylor, 2001, "*Spiral phase A: A prototype integral field spectrograph for the anglo-australian telescope*, PASP 113, 215



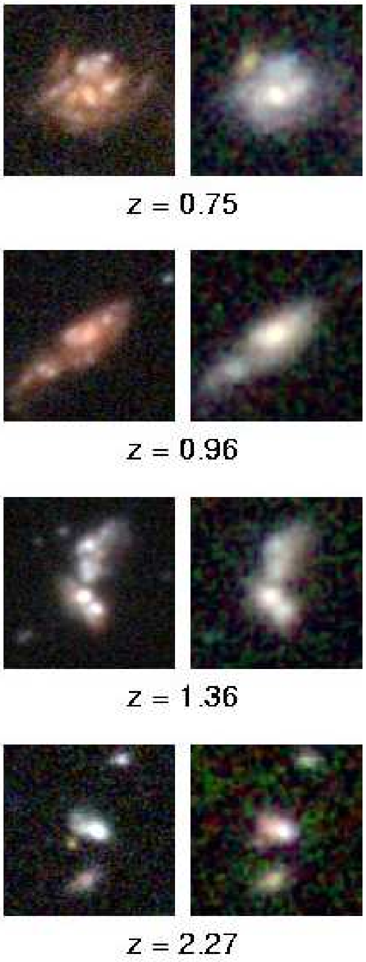
CIRPASS 499 lens array



A local spiral redshifted to z=1.44 with the CIRPASS IFU overlaid



The CIRPASS fore-optics are easily adapted to any telescope



Galaxies from the HDF

The spectrograph optics and dewar are in a cold room at -40C, in order to reduce the thermal background contribution