

WALLABY Newsletter - No 3

April 2012

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Welcome

It's time for another update on the WALLABY project. This is our third newsletter, and it's packed with a large number of great contributions. Thank you to all those who sent articles and pictures. Please enjoy the summaries of recent papers and conferences, updates from WALLABY working groups, ASKAP news, future WALLABY-related meetings, our list of memos, new postdocs as well as postdoc opportunities. If you missed contributing to this issue, make sure your results appear in the next newsletter!

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Upcoming Meetings

- Multiwavelength Surveys: a vintage decade: 5th joint CASS/AAO Southern Cross Conference, Hunter Valley, 4-8 June 2012 - see <http://www.atnf.csiro.au/research/conferences/2012/SCCSV>.
- Magellanic Clouds Workshop: Perth, September 10-13, 2012 - see <http://www.icrar.org/news/magellanic-clouds-workshop>.

Further updates can be seen/posted at: <http://www.atnf.csiro.au/research/WALLABY/meetings.html>



Image: WA Department of Commerce

New Wallaby Postdoctoral Fellows

- CAASTRO 2MASS Tully-Fisher (2MTF) Postdoctoral Fellowship, based at ICRAR/UWA: Chris Springob.
- SIEF Postdoctoral Fellow ("Galaxies: Fuel and Fireworks"), based at AAO: Iraklis Konstantopoulos.
- CASS OCE Postdoctoral Fellow: Peter Kamphuis (profile below).

Forthcoming Postdoc Opportunities

- Marie Curie Fellowships (Outgoing & Incoming): deadline 16 August 2012. See: <http://cordis.europa.eu/fp7/mariecurieactions>

Further updates can be seen and posted at: <http://www.atnf.csiro.au/research/WALLABY/postdocs.html>

WALLABY Postdoc Profile

Peter Kamphuis

I am Peter Kamphuis and I have recently (Feb 2012) started as an OCE Postdoctoral Fellow at CASS in Marsfield. Before coming to CSIRO, I worked in Germany as a Humboldt Fellow at the Ruhr-University Bochum developing a pipeline to fit tilted-ring models automatically to the WHISP galaxies. As a member of the WALLABY kinematics group, this work will now be further developed for application to the WALLABY data, specifically the extraction of the kinematical parameters.

Currently I am involved in two major projects. One of them is the creation of a pipeline, based on the Tilted Ring Fitting Code (Jozsa et al. 2007), which can fit models to large sets of galaxies in an automated way. Such a pipeline will be crucial in the analysis of the data produced

by future wide-area HI surveys such as WALLABY and WNSHS. The other project I am involved in is HALOGAS (<http://www.astron.nl/halogas/>). As such I am currently analyzing the edge-on galaxy NGC 5023. The excitement in this galaxy is that it has individual extra-planar features which extend up to 3.2 kpc from the plane of the disk. Moreover, Fabry-Perot measurements show that the extra-planar individual features seen in the HI are correlated to bright HII regions in the plane of this galaxy. This means that we might be viewing the creation of a HI halo around this galaxy. The analysis of the HALOGAS survey is an ongoing project that will bring forth exciting new science in the field of extra-planar neutral hydrogen and accretion in the coming years.

The above projects focus on the accretion of neutral hydrogen onto spiral galaxies. In my opinion a crucial part of understanding galaxy

of accurate parameterisation, the handling and merging of fragmented sources, the flagging and removal of RFI, and improvement of the reliability of source finders through filtering of output catalogues.

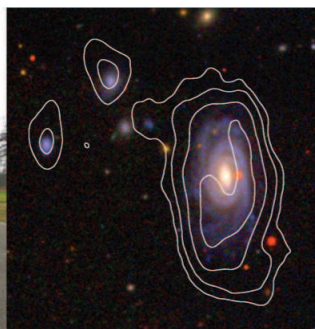
The meeting resulted in the development and testing of improved source parameterisation algorithms based on determining the full spatial and spectral extent of a source. Given the recent progress in the area of source parameterisation, our team will soon be able to start developing advanced parameterisation routines and will require feedback from the rest of the WALLABY team as to what source parameters are meaningful and should be extracted. We also agreed that radio frequency interference (RFI) will be a significant obstacle on our way to efficient and reliable source finding. As flagging and removal of RFI will be non-trivial, we suggest that a working group dealing with the issue be established.

Bluedisks Workshop

ASTRON, February 2012

Guinevere Kauffmann and Gyula Józsa

From 2014 to 2020, the WSRT equipped with the Apertif focal plane array system will offer the opportunity to map the neutral hydrogen content of the local Universe over a quarter



of the sky. Meticulous preparation is required for such an ambitious undertaking, and there is no better way to prepare for Apertif than to test and sharpen our tools on real data.

The Bluedisk Project, lead by Guinevere Kauffmann (MPA Garching), has recently started with a WSRT neutral-hydrogen survey of 50 galaxies. These were selected

based on their optical and ultraviolet properties as observed with the Sloan Digital Sky Survey (SDSS) and the Galaxy Evolution Explorer (GALEX) satellite. Based on studies with the Arecibo telescope, we can predict the HI content of these galaxies to better than a factor of two. Half of the sample galaxies with unusually blue outer disks are expected to have an excess neutral hydrogen component. With the Bluedisk Project we will investigate the morphology and kinematics of this excess gas and try to ascertain whether it has been recently accreted from the external environment.

Observations are expected to be completed in May 2012. In February 2012, the Bluedisk team met in Dwingeloo to conduct a first inspection of the observations. It was an inspirational event! The photograph on the left shows some of the team members on a tour of the WSRT. On the right, we show an SDSS colour-composite of the Bluedisk galaxy J110759+352747 overlaid with neutral-hydrogen contours. The galaxy was found to contain 17 billion solar masses of neutral gas and is apparently interacting with several gas-rich companion galaxies.

Are all excess galaxies like this? We will soon see.

A sister project at the Australia Telescope Compact Array (ATCA) and led by Virginia Kilborn (Swinburne University) has just been accepted. The first HI observations are scheduled for 6-8 May 2012. We hope to show some results in a future Wallaby Newsletter.

SAMI Workshop

Sydney, 9-10 Feb 2012

Sarah Brough

The Large Surveys in the Multi-Integral Field Spectrograph (IFS) Era workshop was held over 9-10

February 2012 at the ATNF Lecture Theatre in Marsfield, NSW, with over 60 attendees from around Australia and overseas.

Several multi-IFS instruments are currently in use or in development around the world. The University of Sydney and the Australian Astronomical Observatory have recently collaborated on the Sydney-AAO Multi-object IFS (SAMI; Croom et al. 2012), a multi-IFS instrument based on innovative lightly-fused fibre bundles called hexabundles. SAMI was successfully commissioned at the AAT in July 2011. Deploying many integral field units over a large field of view, multi-IFS instruments like SAMI will revolutionise the future of galaxy surveys at optical wavelengths by providing spatially-resolved spectroscopy for huge numbers of objects.

The aim of this workshop was to explore the key science made possible by new multi-IFS instruments. Presentations were made on current single IFS surveys (CALIFA), other future multi-IFS surveys (MaNGA), and the serendipitous observations possible during the HETDEX baryon acoustic oscillation survey. The current understanding of spatially-resolved galaxy formation from a theoretical perspective was presented as well as science cases applicable to SAMI. Discussion sessions ensured that everyone had a chance to contribute.

During the workshop the environmental and stellar mass dependence of star formation, as well as feedback process such as shocks, starbursts and galaxy winds and the pointers of gas kinematics were identified as key science drivers for a survey with SAMI. The Galaxy And Mass Assembly (GAMA; Driver et al. 2011) survey with its multi-wavelength photometry, single-fibre optical spectroscopy and value-added information such as stellar masses, environmental measurements (nearest neighbour surface densities and group catalogue) and surface brightness profile-fitting was identified as an ideal catalogue for sample selection.