

HECTOR SCIENCE MEETING

WEDNESDAY 11 AUGUST 2021, 12.00 - 1.00PM

Zoom – the meeting was recording for minute taking purposes only.

Attendees: Julia Bryant (Chair), Sree Oh, Marie Partridge, Matt Owers, Stefania Barsanti, Jesse van de Sande, Nic Scott, Scott Croom, Di Wang, Nabo Mukty, KASI Team, Angel Lopez-Sanchez, Matthew Colless, Sam Vaughan, Amelia Fraser-McKelvie, Richard McDermid

Apologies: Lisa Kewley, Luca Cortese, Sarah Sweet

Item	
1	<p>Welcome and Overview Julia welcomed everyone and provided an overview of the meeting agenda.</p>
2	<p><u>Action Items from the previous meeting (13 July)</u> Paper on spin flows with SAMI <ul style="list-style-type: none"> Sam and Scott have discussed the details with Yifan as there were some extra tests required. Scott will send a draft of the paper to Joon Lee. Instrument Overview <ul style="list-style-type: none"> Instrument team to provide a name for the robot. Astroparticle Physics – Relationship of dark matter with Hector <ul style="list-style-type: none"> Celine will discuss her group’s potential contribution with Joss and Julia. Hector Website Overview <ul style="list-style-type: none"> The internal facing pages have been set up however the site is still in development. The Working Group heads are encouraged to fill in the relevant sections. Sree and Stefania are managing access. </p>
3	<p>Update on first observing run. [Angel]</p> <ul style="list-style-type: none"> Due to current COVID restrictions the commissioning run scheduled to take place in August has not been able to proceed. Sree has contacted observers to reschedule dates. The website has been updated. Julia noted that the observatory and observers have been very accommodating to enable rescheduling and also noted the flexibility of the Veloce and GALAH teams. The first 2dF run was held on the w/c 2 August. Caro observed from home and Angel from the AAT observing room at Macquarie. Caro reduced the data to check everything was working and copied the data to the cloud. There were some issues with 2dF and also clouds on the first night. 3 fields were observed on the 2nd night.
4	<p>Update on observing regions/strategy. [Sam] Slide 2 – Sam provided a reminder of the different Hector survey regions which would be observed. Slide 3 – WAVES South region - the 3 rectangular regions in the south region are the GAMA 23 field and the 2 new Hector regions H1 and H3. The WAVES survey region is the blue, green GAMA 23 region is behind the red area. The red area is the WAVES Deep region which overlaps nicely with the GAMA 23 region. The green area is already complete for red shifts. The yellow areas are the H1 & H3 regions we are planning to observe – the red shift catalogues are not complete for these regions (we were planning to use TAIPAN to complete these areas) so these observations will fill in the gaps. Further observations of other regions will fill up most of the WAVES region by the end of the survey. WAVES North will also be observed in the future as there were parts of the GAMA regions that SAMI didn’t cover which would be the starting point as the redshifts already exist for these areas, sdss data is also available in this area. Slide 4 – Hector clusters – 12 will be observed. The WAVES field is marked in blue. Some SAMI clusters and some new clusters going out to 2r200. Combining SAMI and Hector data will give very detailed coverage of those clusters. Slide 5 - The first observations will be in the WAVES South regions at the end of September. The WAVES team at UWA have target catalogues and discussions are taking place to add cut outs of image file types for all targets. Discussion points: <ul style="list-style-type: none"> Data Central have an approved project with AAL funding to create a new thumbnail quick look tool to check for stars or other contaminants before observing. Observing room access. <ul style="list-style-type: none"> Will people be able to access remote observing rooms? With the changing COVID restrictions there may need to be adjustments to observing pairings as generally one person is required to be at a remote observing location. Chris Lidman may have already allowed the GALAH team to observe from home. However, it was agreed that it was difficult to observe from home with only 1 or 2 screens and some of the Hector observations will be quite difficult and time sensitive. </p>

	<ul style="list-style-type: none"> ○ Sree has already considered back up observers based on locations. ○ Matthew confirmed that 2 people at Mt Stromlo have been classed as essential workers. ○ USyd staff are not able to use their remote observing room and only MQ staff are able to use the rooms there. ○ The DEVILS team have offered to take on some of the observing from their rooms if the Hector team cannot access observing rooms.
	<p>Introduction to Unique Hector Observing Aspects. [Julia]</p> <ul style="list-style-type: none"> ● Julia shared a number of plots and outputs to introduce a number of differences between SAMI and Hector this will be done over the next few meetings. A document is being finalised which will soon be shared with all observers which outlines the differences. A video will be produced once the instrument has been installed. ● <u>An engineering model of the Hector field plate</u> shows the plate is surrounded by sky fibre sub plates each contains pistons which set the sky fibre position for an observation. The robot positions the magnets and the plate will be swapped out by the observers. The plate weights 6kgs and there is 0.5mm clearance but has guiders to assist with the manual replacement. The hexabundles are placed on the magnets in the centre of the plate and the pistons are set and the cables tie off out of the way, before the field plate then turns upside down. There are sensors in place that stop the rotation if the field plate is not secured. ● <u>Graphical representation of the field plate and sub plates.</u> Each sky fibre subplate feeds one of the 2 spectrographs. Those with the prefix letter A go to AAOmega and those with prefix H go to Hector. The coloured regions on the field plate represent the different telecentricity zones. The numbers on the inside of the sky fibre subplate (there are 7 or 8 pistons on each subplate) indicates what position the piston is in. 1 is the default position. If a sky fibre is contaminated in position 1 it gets moved out 2 mm to position 2 and then position 3. If all positions are contaminated the piston is retracted into the casing to position zero. The pairs of magnets show the square and circular magnets combined for each hexabundle. The hexabundles are labelled by letter, the numbers relate to the rectangular magnet that sets the orientation. Hexabundle A goes to magnet A and B goes to B etc Black magnets/hexabundles feeds to Spector, white feeds to AAOmega. ● <u>Sky Fibre Change Plot.</u> When the hexabundles have been relocated for the new field the sky fibres then need to be repositioned. A plot is generated which indicates only those fibres which need to be moved. ● <u>Tramline Plots.</u> For the SAMI fields, the tramlines in each block (each slitlet) represented an individual hexabundle so they are easy to identify. Hector is more complex as the hexabundles are different sizes and more than one per slitlet. The hexabundles are coloured in contrasting colours and labelled so that each one can be identified on the different blocks (slitlets), this is useful for trouble shooting. Also, for the colour coding stars are marked with a star symbol. ● <u>Graphic for the sky fibres.</u> This graphic expands the slitlet to show just the sky fibres at the edges of each slitlet. Red shows those sky fibres blocked off permanently, black shows those blocked due to that individual tile for that observation. While observing, if there is no data appearing for a sky fibre, you can check if the fibre was blocked off and allows easy trouble shooting. Fibre tables are also produced for data reduction etc. <p>It was agreed that people would get faster at changing fields with experience and that processes would be able to be optimised with time and experience. There is a trade off between increasing the speed of the robot and its accuracy. Some processes which were manually done with SAMI are now automated for Hector. Some of the processes cannot be automated due to retrofitting to 2dF.</p>
	<p>Any other business</p> <p>Data Management/QC Coordinator Role</p> <ul style="list-style-type: none"> ● SAMI Busy Week identified that data management for accessibility could have been managed more effectively. ● It has been proposed to engage a data manager who would be responsible for the location and accessibility of raw and reduced data and who would work closely with the target selection and data catalogue team (Sam) and the data reduction team (Nic and Sree). ● A second person should take responsibility for 2dF data, reduce it and look at the redshift and feed the information to Sam for the redshift catalogue. That person should have experience with 2dF reduction and redshift determination. ● Matt said that as he was doing data reduction for the clusters, he could also do this for 2dF data and has a pipeline already set up. Angel offered assistance if required. <p>Action Item:</p> <ul style="list-style-type: none"> ● Science WG to send any suggestions for a Data Management/QC Coordinator to Julia. ● Julia will put a call out to the Hector Team highlighting the importance of the role.
	<p>The next Hector Science meeting is scheduled for Tue 14 September 2021, 3 - 4pm</p> <p>Meetings will continue alternately on the 2nd Tue and Wed of each month at 3-4pm AEST (1 – 2pm AWST).</p>