



Max-Planck-Institut
für
Radioastronomie

Report from the MKSP

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for the LOFAR Magnetism KSP



MKSP Observations

Code	Target	Band	Coordinator	Granted Time	Code	Target	Band	PI	Granted Time
Commis.	NGC891	HBA	Beck	8 h	LC1_009	Virgo A	HBA	Gasperin	35,2 h
DDT	M33	HBA	Paladino	10h DDT	LC1_018	NGC 4490	HBA	Nikiel-Wroczynski	8,0 h
LC0_043		LBA	Paladino	13 h	LC1_021	NGC 5055	HBA	Middelberg	9,5 h
	M51	HBA	Heald / Beck	8 h	LC1_024	NGC 4258	HBA	Adebahr	9,2 h
	M81/M82	HBA	Beck / Dettmar	5 h	LC1_029	RRL		Oonk	
				5 h	LC1_031	NGC 4449	HBA	Chyzy	9,2 h
		LBA	Beck / Dettmar	5 h	LC1_037	NGC 3079	HBA	Varenius	9,2 h
				5 h	LC1_038	NGC 628	HBA	Mulcahy	9,6 h
	NGC4631	HBA	Dettmar	8 h	LC1_043	NGC 3432	HBA	Miskolczi	8,0 h
	NGC6946	HBA	Chyzy	8 h	LC1_046	NGC 5775	HBA	Heald	9,5 h
	IC342	HBA	Beck	5 h					
				5 h					
	-	LBA	Beck	5 h	Code	Target	Band	PI	Requested Time
	-			5 h	LC2_009	NGC 5033	HBA	Sendlinger	9 h
	M101	HBA	Heald	8 h	LC2_013	NGC 5907	HBA	Miskolczi	11 h
	NGC3627/3628	HBA	Paladino	4 h	LC2_017	M51	LBA	Mulcahy	9 h
				4 h		NGC 891	LBA		9 h
	IC10	HBA	Scaife	8 h	LC2_025	Pulsars	LBA	Bilous	38 h
		LBA	Scaife	8 h	LC1_029	Elais	HBA	Best	100 h
	Stephans Quint.	HBA	Chyzy / Urbanik	8 h	LT2_002	RRL		Oonk	



Recent Achievements

- Extended polarized emission from the Milky Way foreground
 - Iacobelli et al. 2013
- Science quality HBA images of M51 and NGC891
 - noise is 0.2 - 0.3 mJy/beam in total power near M51
 - upper limit for polarization in M51: 0.5 mJy
 - degree of polarization < 0.01%
 - M51 paper (nearly?) submitted
- Low-frequency spectra of several galaxies extracted from the MSS Survey
- Polarized signals and RMs from 35 pulsars in HBA and 4 pulsars in LBA



Proposing and Observing Procedures

- In general work well, thanks to sciencesupport!
- Using Northstar is complicated but once learned it is not too bad.
 - There should be more time for (beta-)tests of Northstar.
 - Observation settings may change between proposing and observing.
- Setting up and performing observations works well from my point of view.
 - It may look different from the POV of sciencesupport.
- I believe the way that pipelines are scheduled on CEP-2 is inefficient.



Open Issues

- Documentation
 - how to use the software
 - **internals of the software, existing/new parameters**
 - calibration strategies
 - wiki cleanup, existing documentation is hard to find
- Operations
 - more flexibility in observation setup
 - easier Northstar
- LTA
 - selecting all scans of one observation
 - “user ingest”, archiving own intermediate data
 - faster / more reliable staging
 - faster / more reliable download
- System
 - **Updated dipole beam model**
 - Station beam
- Software
 - **Channel mode in awimager**
 - **mf-ms-clean in awimager**
 - mf-clean spec.-ind. into BBS
 - **faster/parallelized awimager**
 - image in single stokes (e.g. only Q)
 - software easy to install
 - smart-demix
 - simple processing pipelines on CEP-1/3 and JUROPA et al.
- CEP computing
 - batch-queue scheduler for CEP-2/3
 - CEP-1/3 time awarded by CPU/disk-usage



Important Issues

- Update the documentation
 - several features in e.g. BBS are not documented
 - available only to “insiders”
 - new features are only useful if they are documented
- Improvements of the software
 - mf-ms-clean and channel-mode in awimager
 - needed for diffuse emission and polarization
 - parallelized version of awimager
 - using several nodes efficiently
 - needed in the long run
- Dipole beam model
 - include the latest simulations in the software
 - including corrected hardware and mutual coupling
 - full test of the dipole beam?



Station Beam

- There were two problems that affected the station beam
- In addition DE601 may have 5 ns jumps due to PPS tuning
 - We got told this was fixed in software, but it wasn't!
- Check the station beam on a regular basis
 - E.g. by investigating changes in the station calibration.

