

Double Maser Super Burst telecom, No. 4

Agenda

July 25, 2018

minutes: Ross Burns

1 Recent maser activity

- Any new activity to report from the single-dish M2O
Puschino observes > 1000 Jy maser activity in 4 sources, communicated by email;
IRAS 16293-2422, IRAS 18316-0602, G43.8-0.1, W75N. In future we hope to hear more communications via the M2O mailing list
- How up-to-date are monitoring results? Most observatories are roughly up-to-date regarding data reduction (< 2 weeks). HartRAO has a backlog of unreduced data in which differing formats and file locations may be the main issue
- M2O source lists on the HartRAO website Currently: Irbene and Hart. Others intend to add soon. The group lead by Yonekura will share source list
- How is Fanny doing, can we help? (Recent visit by James?)

We need to open a closer dialogue with Fanny about M2O and any ways that we can help, or any requests we would like to make such as:

- A column on the M2O source list for previous bursting behavior [yes/no]
- Cadence of observations
- A platform and template (Source name, usual flux, burst flux, burst rate) for reporting on new maser burst activities

2 Progress and activity reports

Reporting on data reduction and results of data obtained in relation to the M2O-VLBI project.

Compact array

Pre- and post-burst ALMA and SMA data exist! These show that there is one dominant millimeter core, which is consistent with the interpretation that G25 VLA 2 is the dominant protostellar object, and that VLA 1 and VLA 3 are of shock nature [see VLA results reported by Olga on the wiki page], breaking the multiplicity greatly eases the interpretation of larger scale data in the context of episodic ejection (+episodic accretion).

- The above was gleaned from the automatically produced thumbnail only, a manual or updated-pipeline processing should be carried out and the results would supplement the VLA paper currently being written by Olga [see below].

Interferometric investigations of super-bursts should remain in the umbrella of M2O-VLBI, at least for now.

A comparison of the pre- and post-burst millimeter continuum is highly desirable as it would be additional evidence of the accretion burst process in massive star formation. However, beamsize and frequency considerations must first be addressed. We should also contact the P.I.s of these data since they are very likely planning to use them.

VLBI

- Preliminary polarisation results from the EVN ToO data

Report by Ross that there is no obvious enhancement in the B-field strength based on linear polarisation fraction.

However the preliminary results only include sky-plane polarisation; line-of-sight B-field could be dominant in the bursting maser therefore we should not yet draw conclusions

- Planning the first papers

Now that results are being reached we should consider which approach to take to the chronology and themes of the first publications of our group

- VLA 6.7, 12, 22, 44 GHz of G25 (Detailed background info)
- Single-dish light curve of G25 + one VLBI epoch
- Multi-epoch VLBI (Flux vs time ; B-field vs time ; proper motion) [EVN+KaVA+VLBA]
- Multi-scale [Single-dish ; VLA ; VLBI ; Space-VLBI]

- It seems best to begin publications with VLA data. The purpose of this paper is to introduce the interferometer scale observations of masers at 6.7, 22 and 44 GHz, while also providing 6.7, 12, 22 and 44 GHz continuum maps for excellent context and background for subsequent VLBI papers. This work benefits from news that pre- and post-burst SMA and ALMA archival data exist and should be exploited.

- Pre-burst maps with VLBA (+RA) should come second, referring to the bursting maser by its velocity.

- Post-burst EVN, KaVA and VLBA data to follow, their purpose being to provide high-sensitivity maps of the bursting maser location in the context of bowshocks in the region. Also to be grouped into multi-epoch studies

- Consideration: Timeline of all observations of G25

Timeline of single-dish maser flux measurements of G25 around the burst period. The timeline also notes the dates of follow-up VLBI and VLA observations to provide a comparison between the single-dish and VLBI derived fluxes (reveals the compactness of the bursting component by its degree of resolved-out-ness). Very useful for context and discussing the source.

3 Proposals

- Submitted: Trigger proposal to the EVN (6.7 and 22 GHz)
- Submitted: S255 post-burst jet onset to the EVN (22 GHz)
- VERA parallax for G25

No time to discuss

Next VLBI deadline is 1st Aug 2018 - for VLBA

No plans to submit a proposal in this call

4 Human Resources

Visits / collaborations

Mateusz to visit JIVE from 26th July 2018

Future meetings

We should arrange a face-to-face meeting at the EVN symposium - Granada, October 2018. A suitable date should be sought

Other announcements

New paper by Torun researchers detailing the Methanol maser burst in S255:

<https://arxiv.org/abs/1807.07334>