



UvA-DARE (Digital Academic Repository)

Two bright bursts from FRB 20201124A with the Onsala 25-m telescope at 1.4 GHz, with no simultaneous emission detected at 330 MHz with Westerbork 25-m

Kirsten, F.; Ould-Boukattine, O.S.; Nimmo, K.; Hessels, J.W.T.; Yang, J.; Gawronski, M.; Snelders, M.P.; Feiler, R.; Marcote, B.; Forssen, O.

Publication date

2021

Document Version

Final published version

Published in

The astronomer's telegram

License

Unspecified

[Link to publication](#)

Citation for published version (APA):

Kirsten, F., Ould-Boukattine, O. S., Nimmo, K., Hessels, J. W. T., Yang, J., Gawronski, M., Snelders, M. P., Feiler, R., Marcote, B., & Forssen, O. (2021). Two bright bursts from FRB 20201124A with the Onsala 25-m telescope at 1.4 GHz, with no simultaneous emission detected at 330 MHz with Westerbork 25-m. *The astronomer's telegram*, 14605. <https://www.astronomerstelegram.org/?read=14605>

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

UvA-DARE is a service provided by the Library of the University of Amsterdam (<https://dare.uva.nl>)

Outside
 GCN
 IAUCs
 ATel on [Twitter](#)
Patreon

The Astronomer's Telegram

[Post](#) | [Search](#) | [Policies](#)
[Credential](#) | [Feeds](#) | [Email](#)

1 Apr 2022; 13:07 UT

This space for free for your conference.



**MIAPP workshop on
 Interacting Supernovae**
 6 February - 3 March 2023
 Garching, Germany

Thanks to Patrons, The Astronomer's Telegram is free to read, free to publish and always will be. Thank you.

[[Previous](#) | [Next](#) | [ADS](#)]

Two bright bursts from FRB 20201124A with the Onsala 25-m telescope at 1.4 GHz, with no simultaneous emission detected at 330 MHz with Westerbork 25-m

ATel #14605; *F. Kirsten (Chalmers/OSO), O. S. Ould-Boukattine (U. of Amsterdam), K. Nimmo (ASTRON, U. of Amsterdam), J. W. T. Hessels (ASTRON, U. of Amsterdam), J. Yang (Chalmers/OSO), M. Gawronski (NCU, Torun), M. P. Snelders (U. of Amsterdam), R. Feiler (NCU, Torun), B. Marcote (JIVE), O. Forssen (Chalmers/OSO)*

on 6 May 2021; 09:47 UT

Credential Certification: [Franz Kirsten \(franz.kirsten@chalmers.se\)](mailto:franz.kirsten@chalmers.se)

Subjects: Radio, Fast Radio Burst

Referred to by ATel #: [15190](#), [15192](#)

Tweet

We are running a multi-telescope, multi-band observing campaign on the recently announced fast radio burst source FRB 20201124A (ATel #[14497](#)). The participating stations are the 25-m telescope at Onsala Space Observatory (OSO, observing between 1360-1488 MHz), the 25-m dish at Westerbork RT1 (300-364 MHz) and the 32-m telescope in Torun (4550-4806 MHz). Whenever possible, the three stations observe simultaneously, recording raw voltages ('baseband' data, dual circular polarisation, 2-bit quantisation) in VDIF format with the local DBBC2 backends.

The baseband data are transferred to a multi-core computer at OSO and searched with a pipeline that converts the voltages to Stokes *I* and writes them out as filterbank files. Depending on observing frequency, the time and frequency resolution vary between 64 microseconds to 1 millisecond and 7.8 kHz and 1 MHz, respectively. We search the filterbank data for bursts using Heimdall and process all candidates with the machine learning classifier FETCH (Agarwal et al. 2020). A detailed description of the pipeline can be found in Kirsten et al. (2021).

Our pipeline detected two bursts in the data taken with the Onsala 25-m dish on 2021 April 22 and 2021 April 25. The bursts' barycentric arrival times (in TDB timescale) referenced to infinite frequency using a dispersion measure of $DM = 410 \text{ pc cm}^{-3}$ (determined by eye) are:

Related

- [15285](#) A bright burst detected at 2 GHz from the repeating FRB 20201124A
- [15197](#) Detection of two bright bursts from FRB20201124A with Apertif at the Westerbork Synthesis Radio Telescope.
- [15192](#) Subsequent detection of three more bursts from FRB 20201124A using the Westerbork-RT1 25-m telescope
- [15190](#) Burst detection from FRB 20201124A using the Westerbork-RT1 25-m telescope
- [15142](#) New giant radio flare from Cygnus X-3
- [14933](#) Detection of 9 new bursts from FRB20201124A with the 100 m Effelsberg Telescope
- [14836](#) Further monitoring of FRB 20201124A with Swift
- [14605](#) Two bright bursts from FRB 20201124A with the Onsala 25-m telescope at 1.4 GHz, with no simultaneous emission detected at 330 MHz with Westerbork 25-m
- [14603](#) VLBI localization of FRB 20201124A and absence of persistent emission on milliarcsecond scales
- [14592](#) ASKAP low-band interferometric localisation of the FRB 20201124A source
- [14556](#) Extremely bright pulse from FRB20201124A observed with the 25-m Stockert Radio Telescope
- [14549](#) Detection of a persistent radio source at the location of FRB20201124A with VLA
- [14538](#) uGMRT localization of FRB20201124A
- [14537](#) Radio observations of FRB20201124a at 4-8 GHz with the 100-m Effelsberg Radio Telescope
- [14532](#) MASTER follow-up optical observation of FRB201124A
- [14529](#) uGMRT detection of a persistent radio source coincident with FRB20201124A
- [14526](#) VLA/realfast localization and deep imaging of FRB 20201124A
- [14525](#) Observations of FRB 20201124A with Swift/XRT and UVOT
- [14523](#) Swift observations of FRB20201124A
- [14519](#) High Frequency Radio Observations of FRB 20201124A at 2.26 GHz using

B1: MJD 59326.642775112

B2: MJD 59329.517962359

Burst B1 is a single-component burst, while B2 is composed of at least three separate peaks (above we quote the arrival time as the peak of the first component). The three peaks are separated by roughly 9 and 11 ms from one another. We measure the fluences of the bursts as follows:

B1: 20 +/- 2 Jy ms

B2_total: 74 +/- 8 Jy ms

B2_comp1: 26 +/- 3 Jy ms

B2_comp2: 21 +/- 2 Jy ms

B2_comp3: 18 +/- 2 Jy ms

The Westerbork 25-m RT1 telescope was observing at the same time. However, no bursts were found either in a blind search of the whole data set, or at the expected arrival times of the 1.4-GHz bursts when accounting for dispersive delay down to 330 MHz. Thus, we constrain the fluence of any potential counterpart around 330 MHz to be < 80 Jy ms.

[Dedispersed plots of the bursts.](#)

	the Deep Space Network
14518	FAST detection and localization of FRB20201124A
14516	A redshift for the putative host galaxy of FRB20201124A
14515	ASKAP localisation of the FRB 20201124A source
14509	Correction to ATel #14508
14508	A second fast radio burst from the source of FRB 201124A detected by ASKAP
14502	ASKAP detection of a repeat burst from the FRB 20201124A source
14497	Recent high activity from a repeating Fast Radio Burst discovered by CHIME/FRB

[[Telegram Index](#)]

R. E. Rutledge, Editor-in-Chief

rrutledge@astronomerstelegam.org

Derek Fox, Editor

dfox@astronomerstelegam.org