Subsequent detection of three more bursts from FRB 20201124A using the Westerbork-RT1 25-m telescope


Publication date
2022

Document Version
Final published version

Published in
The astronomer's telegram

License
Unspecified

Link to publication

Citation for published version (APA):

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)
Subsequent detection of three more bursts from FRB 20201124A using the Westerbork-RT1 25-m telescope

ATel #15192; O. S. Ould-Boukattine (UvA), F. Kirsten (ASTRON, Chalmers), K. Nimmo (ASTRON, UvA), M. P. Snelders (UvA), J. W. T. Hessels (ASTRON, UvA), R. Blaaauw (ASTRON), M. Gawronski (NCU, Torun), R. J. van Ruiten (UvA), J. J. Sluman (ASTRON)
on 29 Jan 2022; 13:22 UT

Credential Certification: Franz Kirsten (franz.kirsten@chalmers.se)

Subjects: Radio, Fast Radio Burst
Referred to by ATel #: 15197, 15285

Tweet

Following ATel #15190, we report the subsequent detection of three additional bursts from FRB 20201124A using the Westerbork-RT1 25-m telescope.

Observations were done at a central frequency of 1323.49 MHz using a bandwidth of 128 MHz. We use a DM of 410.775 pc cm^-3, as determined in our analysis of bursts discovered using the Onsala telescope (ATel #14605, Kirsten et al., in prep.).

Burst 1:
Fluence: 58 +/- 5 Jy ms
Arrival Time (MJD): 59603.754507227

Burst 2:
Fluence: 37 +/- 5 Jy ms
Arrival Time (MJD): 59603.799227754

Burst 3:
Fluence: >77 Jy ms
Arrival time (MJD): 59605.835730597

Arrival times are referenced to infinite frequency at the solar system barycentre (in TDB) using a DM of 410.775 pc cm^-3 and DM constant 4.14880568679703 GHz^-2 cm^-3 pc^-1 ms. The fluence of Burst 3 is only a lower limit as we are recording raw voltage data with 2-bit quantisation. This introduces quantisation noise lowering the measured
value compared to the real fluence. This will be corrected for in a forthcoming paper. Likewise, a full spectro-polarimetric analysis at microsecond-resolution will be presented elsewhere.

Bursts 1 and 2 are separated by roughly 1.07 hours in time. Burst 3 was detected in observations taken two days later. We spent 2.5 hours on source in each run, implying burst rates of ~1/hour above our detection limit of ~10 Jy ms.

The subsequent detection of three additional bursts from FRB 20201124A, combined with the single detection on MJD 59602 (ATel #15190), strongly suggests that the source has started a new activity cycle. We therefore encourage follow-up observations at all wavelengths.

Dedispersed plot of the bursts

[ Telegram Index ]

R. E. Rutledge, Editor-in-Chief
Derek Fox, Editor

rrutledge@astronomerstelegram.org
dfox@astronomerstelegram.org