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Burst detection from FRB 20201124A using the Westerbork-RT1 25-m telescope

ATel #15190; *O. S. Ould-Boukattine (UvA), F. Kirsten (ASTRON, Chalmers), K. Nimmo (ASTRON, UvA), M. P. Snelders (UvA), J. W.T. Hessels (ASTRON, UvA), R. Blaauw (ASTRON), M. Gawronski (NCU, Torun), J. J. Sluman (ASTRON)*

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Subjects: Radio, Fast Radio Burst

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We report the detection of a fast radio burst 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.).

Fluence: 32 +/- 3 Jy ms

Arrival Time (MJD): 59602.992809162 at infinite frequency at the solar system barycentre (in TDB) using a DM of 410.775 pc cm⁻³ and DM constant 4.14880568679703 GHz² cm³ pc⁻¹ ms.

FRB 20201124A has been described as one of the most active FRB sources to date, having burst rates as high as ~45 bursts/hour (Lee et al. 2021). The source entered a period of high activity in February-April 2021 (Lanman et al. 2021), and multiple studies have already been published, including a host galaxy association (Fong et al. 2021; Ravi et al. 2021), millisecond localization (Nimmo et al. 2021, arXiv:2111.01600) and studies of polarization in the bursts (Hilmarsson et al. 2021; Kumar et al. 2021). Later in September 2021, multiple bursts were reported by CHIME/FRB and Effelsberg, possibly indicating the start of a new activity phase (ATel #[14933](#)).

The detection of a new burst from FRB 20201124A with Westerbork-RT1 at 1323.49 MHz could indicate that the source is again starting a new activity cycle. We therefore

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- [15190](#) Burst detection from FRB 20201124A using the Westerbork-RT1 25-m telescope
- [14933](#) Detection of 9 new bursts from FRB20201124A with the 100 m Effelsberg Telescope
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- [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 millisecond scales
- [14592](#) ASKAP low-band interferometric localisation of the FRB 20201124A source
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encourage follow-up observations at all wavelengths.

The observation reported here is part of a high-cadence multi-wavelength observation campaign of FRB 20201124A using multiple, 25-30-m dishes that are also part of the European VLBI Network (EVN). Our observing strategy has been described earlier in ATel #14605 and further details about our burst search pipeline can be found in Kirsten et al. (2021, DOI: 10.1038/s41550-020-01246-3). A detailed analysis of this burst and others detected in this campaign (ATel #14605) will be presented in a forthcoming paper (Kirsten et al., in prep.).

Dedispersed plot of the burst

localization of
FRB20201124A

- 14516 A redshift for the putative host galaxy of FRB20201124A
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