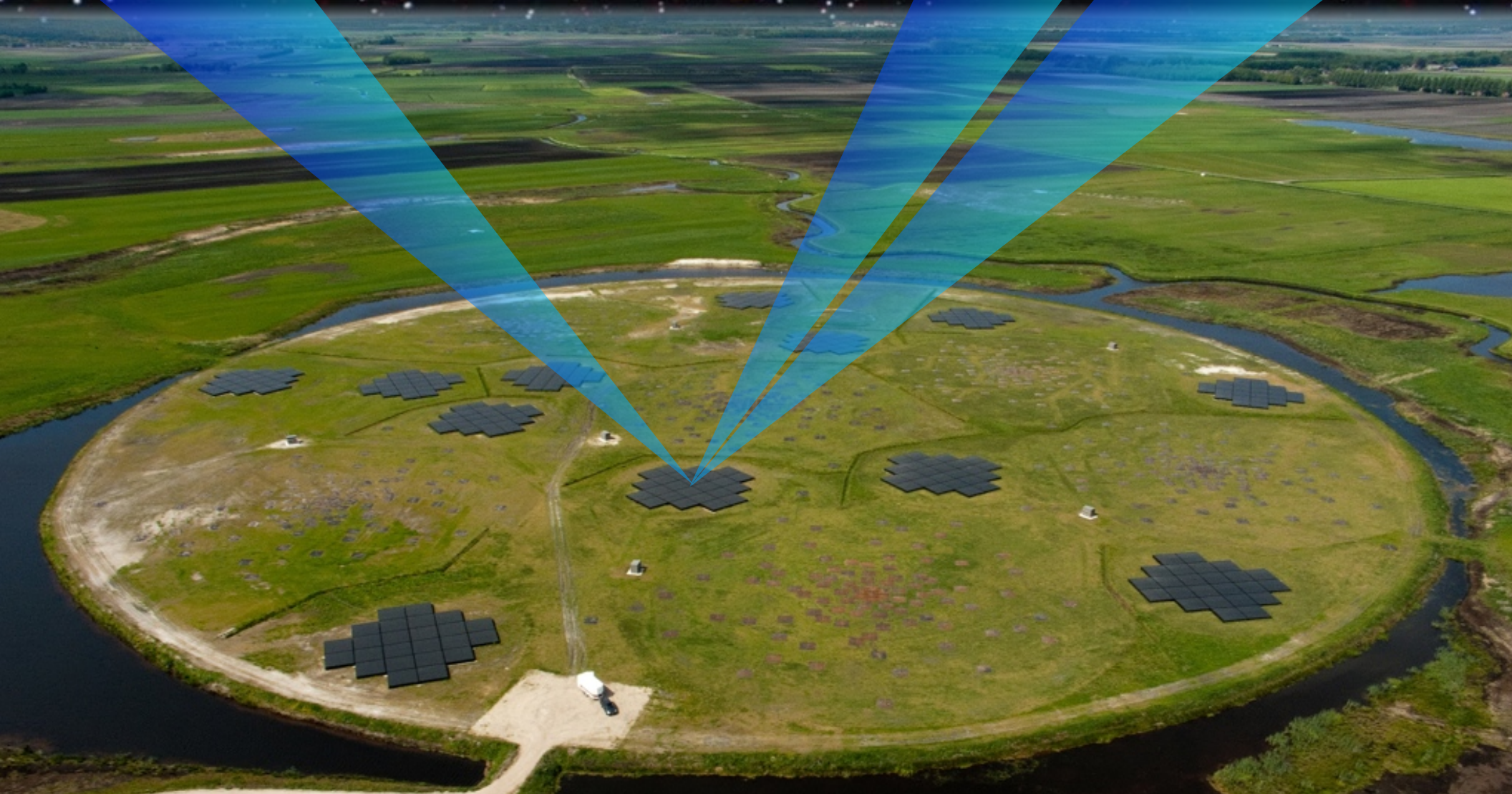
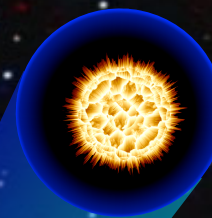


Pulsar Busy Week #16

March 19-23, 2012

Jason Hessels (ASTRON / UvA)

+LOFAR Pulsar Working Group



PBW #16: Participants

Anastasia Alexov: [offline pipeline](#), [processing](#), [.xml](#)

Masaya Kuniyoshi: polarization calibration

Aris Noutsos: polarization pipeline

Charlotte Sobey: polarimetry data analysis, [ionosphere](#)

Maciej Serylak: Nançay standalone observations

Evan Keane: Effelsberg standalone observations and M31 search reduction

Ben Stappers: dspsr issues, phase alignment

Vlad Kondratiev: analysis of single-pulse data, [pulp.py](#)

Joeri van Leeuwen: analysis of B0943+10 simultaneous XMM + LOFAR data

Jason Hessels: catalog of low-frequency pulse profile evolution, [online flagging](#), ionosphere, observations

Maura Pilia: pulse profile evolution data reduction

Joris Verbiest: [pulsar timing of MSPs](#)

Thijs Coenen: search processing

Sander ter Veen: MSSS commensal beam-formed observations

2nd Pulsar Paper Accepted

Astrophysics > High Energy Astrophysical Phenomena

Wide-band Simultaneous Observations of Pulsars: Disentangling Dispersion Measure and Profile Variations

T. E. Hassall, B. W. Stappers, J. W. T. Hessels, M. Kramer, A. Alexov, K. Anderson, T. Coenen, A. Karastergiou, E. F. Keane, V. I. Kondratiev, K. Lazaridis, J. van Leeuwen, A. Noutsos, M. Serylak, C. Sobey, J. P. W. Verbiest, P. Weltevrede, K. Zagkouris, R. Fender, R. A. M. J. Wijers, L. Bahren, M. E. Bell, J. W. Broderick, S. Corbel, E. J. Daw, V. S. Dhillon, J. Eisloffel, H. Falcke, J.-M. Griessmeier, P. Jonker, C. Law, S. Markoff, J. C. A. Miller-Jones, R. Osten, E. Rol, A. M. M. Scaife, B. Scheers, P. Schellart, H. Spreeuw, J. Swinbank, S. ter Veen, M. W. Wise, R. Wijnands, O. Wucknitz, P. Zarka, A. Asgekar, M. R. Bell, M. J. Bentum, G. Bernardi, P. Best, A. Bonafede, A. J. Boonstra, M. Brentjens, W. N. Brouw, M. Bruggen, H. R. Butcher, B. Ciardi, M. A. Garrett, M. Gerbers, A. W. Gunst, et al. (34 additional authors not shown)

(Submitted on 17 Apr 2012)

Dispersion in the interstellar medium is a well known phenomenon that follows a simple relationship, which has been used to predict the time delay of dispersed radio pulses since the late 1960s. We performed wide-band simultaneous observations of four pulsars with LOFAR (at 40–190 MHz), the 76-m Lovell Telescope (at 1400 MHz) and the Effelsberg 100-m Telescope (at 8000 MHz) to test the accuracy of the dispersion law over a broad frequency range. In this paper we present the results of these observations which show that the dispersion law is accurate to better than 1 part in 100000 across our observing band. We use this fact to constrain some of the properties of the ISM along the line-of-sight and use the lack of any aberration or retardation effects to determine upper limits on emission heights in the pulsar magnetosphere. We also discuss the effect of pulse profile evolution on our observations, and the implications that it could have for precision pulsar timing projects such as the detection of gravitational waves with pulsar timing arrays.

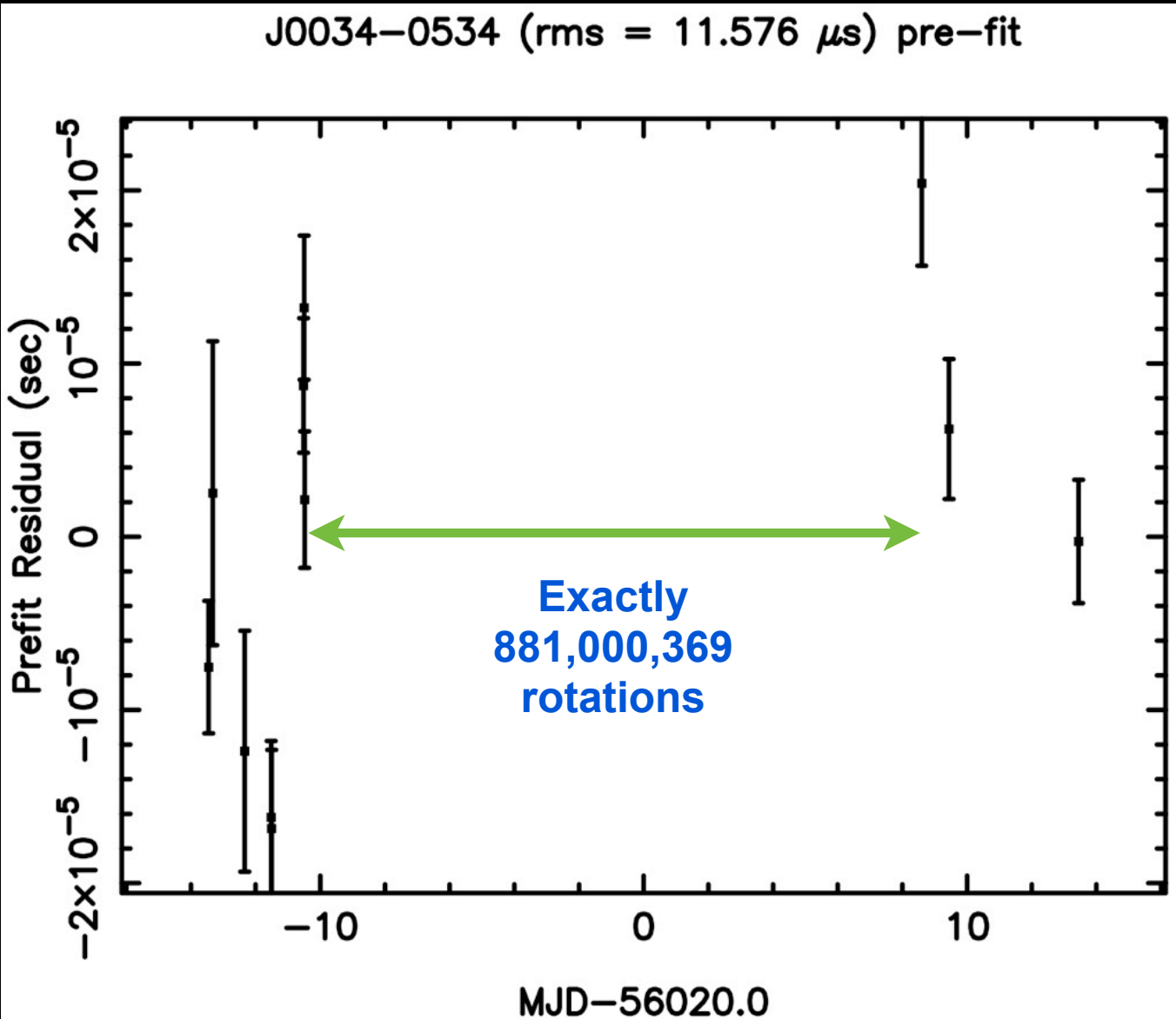
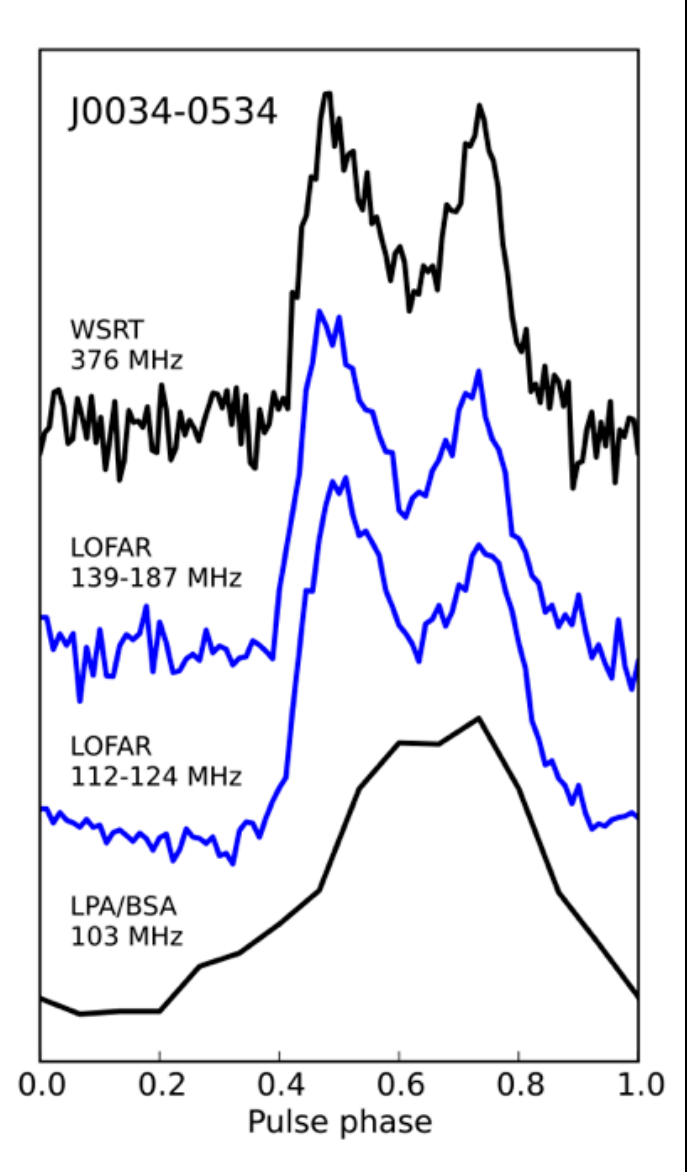
Comments: 20 Pages, 14 Figures, Accepted for publication in Astronomy & Astrophysics

Subjects: **High Energy Astrophysical Phenomena** (astro-ph.HE)

Cite as: [arXiv:1204.3864v1](https://arxiv.org/abs/1204.3864v1) [astro-ph.HE]

Congratulations Tom!

Phase-Coherent Timing of a Millisecond Pulsar



Credit: Verbiest, Hessels