

REPORT ON THE RADIONET3 NETWORKING ACTIVITY

TITLE: 15TH EPTA MEETING

DATE: *12-16 MAY 2014* **TIME:** (WHOLE DAY)

LOCATION: *DWINGELOO, THE NETHERLANDS*

MEETING WEBPAGE <http://www.epta.eu.org>

HOST INSTITUTE: *ASTRON*

PARTICIPANTS NO: *34*

MAIN LEADER: *ASTRON*

REPORT:

1. Agenda of the meeting

Monday 12 May

S1. 13:30-15:00 Timing group results and discussions

E/IPTA data combination (J. Verbiest; Bielefeld)

Update on papers (G. Desvignes (MPIfR), G. Janssen (ASTRON), N. Caballero (MPIfR))

Disc: work to be done to finish the papers

Disc: recommendation for data standard to the IPTA

S2. 16:00-17:30 Data analysis group results and discussions

Updates on papers (A. Sesana (AEI), L. Lentati, S. Taylor (Cambridge), A. Petiteau (Paris))

Disc: work to be done to finish the papers

Tuesday 13 May

S3. LEAP

Report: progress and paper (C. Bassa (ASTRON) and LEAP group)

Disc: LEAP continuing in the coming years

S4. IPTA projects discussions

IPTA Steering Comm. report (J. Hessels (ASTRON), A. Sesana (AEI), B. Stappers (JBCA))

Disc: EPTA presence/leadership in IPTA projects

Disc: Global 1713 IPTA project

S5. GW limit improvements

What will the first GW detection look like (P. Rosado (AEI))

Disc: are the EPTA/IPTA limits consistent/competitive

Disc: how to improve the limits

S6. IPTA meeting and policies

Disc: Banff IPTA meeting presentations

Disc: GWIC detection workshop: presenting IPTA to other collaborations

Disc: Detection protocol: strategy/policies/verifications

Wednesday 14 May

S7. EPTA projects

MSP scattering in LOFAR observations (D. Stinebring (Oberlin/ASTRON))

Black Widow pulsars (G. Shaifullah (Bielefeld))

Bayesian method for pulsar templates (M. Imgrund (MPIfR))

Mapping GW backgrounds using PTAs (S. Taylor (Cambridge))

Bayesian estimation of non-gaussianity (L. Lentati (Cambridge))

APERTIF (J. van Leeuwen (ASTRON))

S8. EPTA observations

Source list improvements (P. Lazarus (MPIfR))

Sardinia Radio Telescope update (A. Possenti (INAF))

Disc: expectations from the next generation data sets

Disc: new developments in GW science

SKA science chapters update (M. Kramer (MPIfR))

Afternoon: Working group collaboration time

Thursday 15 May

Morning: Tour to WSRT

Afternoon: Working group collaboration time

Friday 16 May

Working group collaboration time

2. Scientific Summary

The first EPTA meeting of 2014 was held at ASTRON from 12-16 May. From Monday to Wednesday recent results were presented, and discussion sessions were held on progress on the various projects within the EPTA collaboration. Although this was a very informal meeting

with a focus on discussions, we reserved a slot on Wednesday morning for short talks by PhD students and others to present their ongoing projects. In this way we ensured that all aspects of EPTA work were represented at this meeting.

The position of the EPTA within the International pulsar timing collaboration (IPTA) was discussed. The IPTA is the overarching world-wide collaboration between the three separate PTAs. There are now 8 officially approved IPTA projects and five of these are led by EPTA members, and members are involved in all others. The IPTA is organising their yearly meeting at the end of June and a substantial part of this EPTA meeting was used to discuss the EPTA presence at that meeting and which projects are going to be presented. We discussed our strategy to make sure the EPTA continues to play a leading role in the International collaboration.

The last two days of the meeting were used for working group collaboration time. Since a couple of years, the EPTA has organised the main bulk of the work in working groups; this has shown to be a very effective way of making progress and using the varying expertise across the collaboration. As the members of the EPTA are spread across Europe, with typically no more than a handful of people in one location, these days are very important to improve communication and collaboration in existing projects. The working groups used these days for face-to-face meetings instead of their regular telecons, but also cross-working-group discussions proved to be extremely helpful to speed up several projects.

The first official EPTA combination of data (toas and timing solutions) is about to be published. This improves on previous publications in a way that a complete and thorough study to all systematics in the data has been done by a collaboration-wide effort. Three papers are expected from this effort and combined those will present a complete overview of the current EPTA data set. The theory (data analysis) group has matured within the EPTA and are developing robust techniques for GW limits and detection. With the current data set they are writing up three limit papers based on different GW sources or signals which will be used as default techniques in all future EPTA or IPTA work.

A couple of new members were welcomed in the group that complement the current range of expertise in the EPTA: the first is Lucas Guillemot who has recently taken up a permanent position in Orleans is an expert on Fermi MSPs. By having dr. Guillemot in the EPTA we ensure rapid inclusion of any newly discovered MSP that is potentially interesting for a PTA. Also we have welcomed mr. Pablo Rosado in the EPTA. Mr. Rosado is about to complete his PhD on GW source simulations. His expertise is helpful in predicting which GW signal will be most likely to be detected first, and helps the EPTA to develop the best strategy both in terms of observing as well as analysing the data.

Since the last meeting, 4 students have completed their PhD based on EPTA work (Lassus, Mingarelli, Taylor, Lentati) . The face-to-face meetings are an excellent way for those students to have direct access to all EPTA members and gain from their expertise. Two more students are expected to complete their PhD in the next two years (Caballero, Lazarus), and four students that recently started participated in the meeting for the first time (Brem, Shaifullah, Imgrund, Graikou).

The organisation of the meeting went smoothly. A scientific organising committee was formed (SOC: Janssen, Verbiest, Lazarus, Hessels, Mingarelli, Bassa, Sesana) with representation from all EPTA working groups to ensure all items that needed discussion or presentations got on the programme. The local organisation was very efficient with the added help of ASTRON secretaries (LOC: Janssen, Smits, Elpenhof). Since the ASTRON area in The Netherlands is highly touristic we were able to support participants attendance by renting three holiday cottages. This allowed people to stay in an informal setting very close to ASTRON. A local

venue was chosen for the meeting dinner. A visit to WSRT was scheduled on Thursday morning.

The EPTA would like to thank RadioNet for the funding for this meeting. It was a fruitful and interesting week where the collaboration has made progress on several projects and discussions.

3. Attendance list (incl. participant names, affiliation and country) signed by the participants and confirmed by the organizer

Participants list provided by G. Janssen, SOC and LOC chair and main organiser.

ASTRON, The Netherlands

C. Bassa, J. Hessels, G. Janssen, R. Smits, D. Stinebring

Universität Bielefeld, Germany

E. Graikou, S. Osowski, G. Shaifullah, J. Verbiest

MPIfR, Bonn, Germany

N. Caballero, D. Champion, G. Desvignes, M. Imgrund, M. Kramer, P. Lazarus, K.J. Lee

MPIfG, Golm, Germany

S. Babak, P. Brem, A. Sesana

MPI Hanover, Germany

P. Rosado

University of Birmingham, UK

A. Vecchio

University of Cambridge, UK

L. Lentati, S. Taylor

University of Manchester, UK

M. Purver, S. Sanidas, B. Stappers

CNRS/Orleans, France

I. Cognard, L. Guillemot, A. Lassus, K. Liu, G. Theureau

Universite Paris, France

A. Petiteau

INAF, Cagliari, Italy

D. Perrodin, A. Possenti

4. Financial Report / RadioNet3 contribution

RadioNet3 allocated 4000€ for this meeting. To support participants we booked three holiday cottages for the duration of the meeting. In this way we could support the stay of as many participants as possible in a cost-efficient way.

Cottages: €1266,4

Conference dinner: €1042,70

WSRT tour: €190,80

Coffee/lunches: €1444,14

Total: € 3944,04

Supported participants:

B. Stappers, M. Purver, S. Sanidas, L. Lentati, S. Taylor(UK)

K. Liu, G. Theureau, I. Cognard, A. Petiteau, L. Guillemot, A. Lassus (France)

A. Sesana, P. Brem, P. Rosado (Germany)

5. Conference Proceedings and Web page

This was an informal meeting and since preliminary results were discussed there will be no official conference proceedings or public availability of the presentations.

General information about the meeting is available through the EPTA website:

<http://www.epta.eu.org>.