A few slides on instrumental upgrades for the Parkes radio telescope

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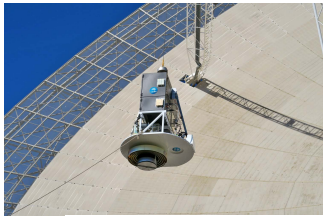
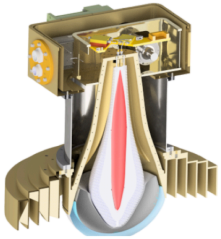
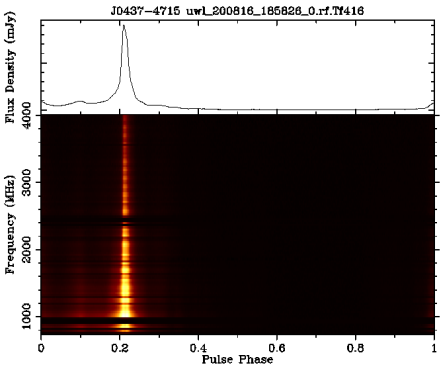
Please talk at the meeting with George Hobbs, Shi Dai or Dick Manchester if you'd like more information

Slide 1: The Parkes ultrawideband receiver
Slide 2: The cryogenically cooled phased array feed
Slide 3: High frequency wide-band receivers

Ultra-wide bandwidth low frequency receiver







Single PPTA observation PSR of J0437-4715

704 to 4032 MHz operating frequency range.

~21 K system temperature

Installed and working well

Science updates with this receiver will be provided by **Shi Dai** in this conference.

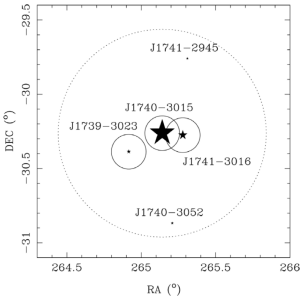
Used for all current PPTA observations

Developing:

- Commensal observing modes (spectral lines and FRBs and pulsars)
- Novel calibration procedures
- Oversampled filterbank
- RFI mitigation methods

Cryogenically cooled phased-array feed

Prototype system



Simultaneous observations of many pulsars using multiple phased-array-feed beams

700 to 1800 MHz operating frequency range.

~20 K system temperature

Funding obtained and building has commenced. Expected installation within ~2 years (for provision April 2022 Semester)

Will provide the opportunity to time multiple pulsars simultaneously, discover new pulsars and use new calibration/RFI rejection methods

https://ui.adsabs.harvard.edu/abs/2017PASA...34...26D/abstract

Ultra-wideband high frequency receiver

The high frequency receiver will sit next to the low receiver and share the same backend equipment

- 4 to ~25 GHz operating frequency range.
- ~20 K system temperature
- Additional feed horn(s) to extend UWL package, shared backend
- Currently establishing science case and seeking partners.
- Expected funding request to be submitted in 2021.

Would then provide Parkes with continuous (and always available) frequency coverage from 700 MHz to ~25 GHz (without any receiver changes).