Timing of binary MSPs with heavy companions found in the HTRU-North

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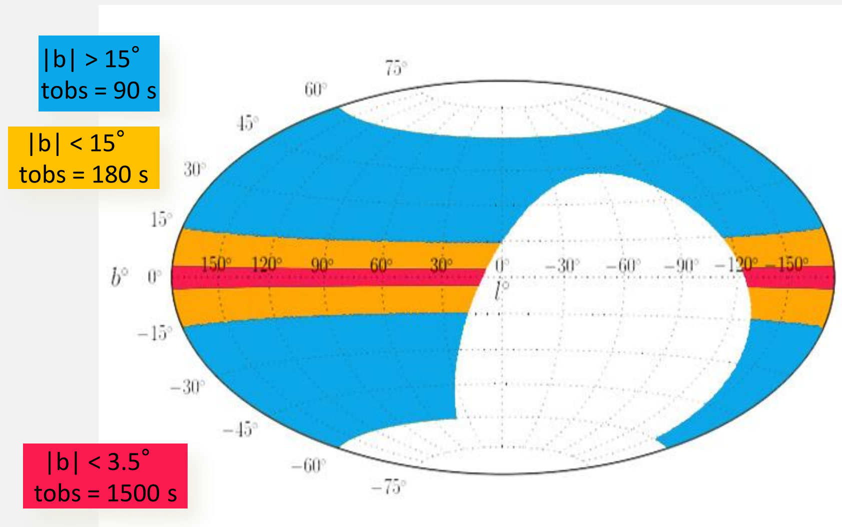
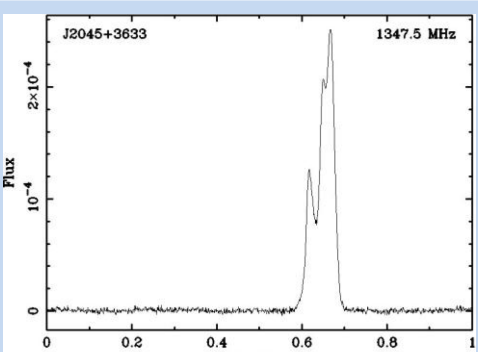
The High Time Resolution Universe Pulsar Survey (HTRU) - the North: Setups

Start date	Summer 2010
Telescope	Effelsberg-100 m
Sky coverage	δ> -20°
Receiver	7-beam 1.4-GHz receiver
Bandwidth	240 MHz
No. of channels	512
Freq. resolution	**0.58 MHz**
Time resolution	**54 µs**

The HTRU North Sky



MSP binaries with massive CO or ONeMg white dwarf companions: PSR J2045+3633 and PSR J2053+4650

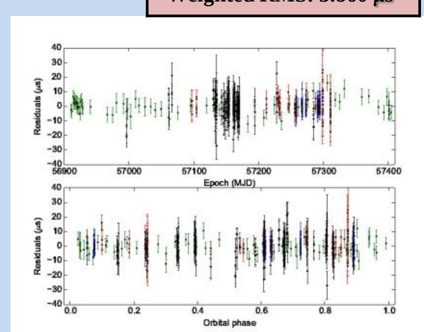


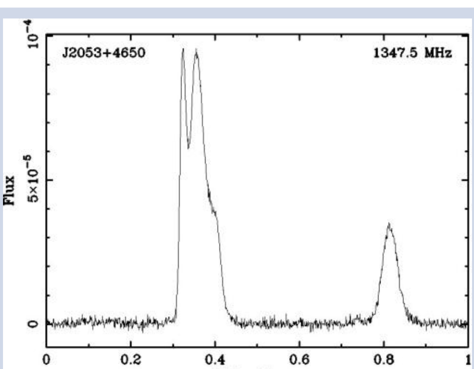
p ~ 31.68 ms
P_b ~ 32.3 days
DM ~129.5 pc cm^{-3}

e~0.0172

Rate of periastron advance: 0.00120(17)° yr^{-1}
Pulsar mass: 1.24(42) solar
Companion mass: 0.8(1) solar

Weighted RMS: 3.860 µs



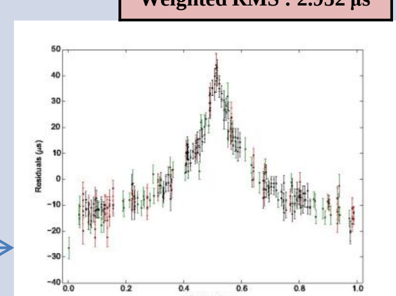


p ~ 12.58 ms
P_b ~ 2.45 days
DM ~98.08 pc cm^{-3}
PM RA: - 3 (1) mas yr^{-1}
PM Decl: - 5.1(9) mas yr^{-1}

Circular highly inclined (i~84.7°) orbit

Shapiro delay measurement

Weighted RMS : 2.952 µs



Pulsar mass: 1.42(19) solar
Companion mass: 0.87(8) solar