

A large radio telescope array, likely the CHIME/FRB array, is shown at night. The structure consists of multiple large, blue-painted metal frames that form a grid-like pattern. The frames are supported by tall, thin legs. The background is a dark night sky filled with numerous stars. The overall scene is illuminated by a soft, ambient light, possibly from the moon or distant stars, creating a serene and scientific atmosphere.

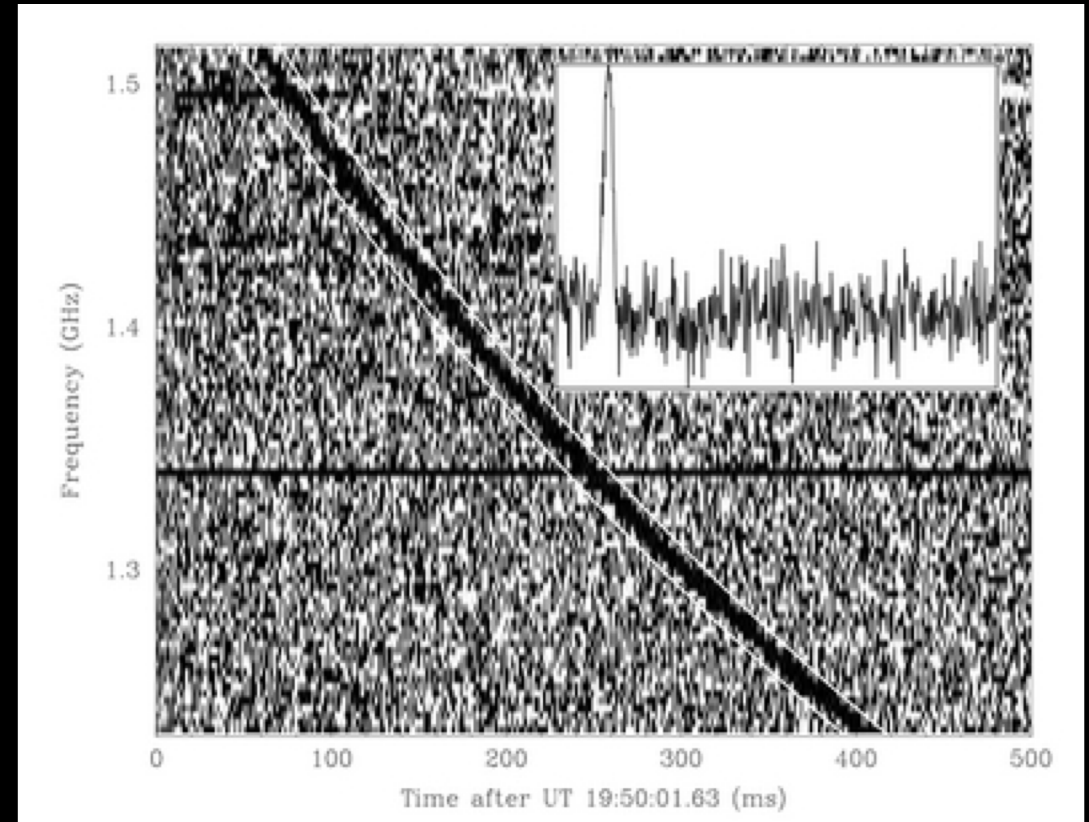
Early Science Results with CHIME/FRB

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What is an FRB?

- Fast
 - Transient phenomenon
 - Millisecond Timescales
- Radio
 - Reported at frequencies between 400 MHz and 8 GHz
 - High dispersion measure
- Bursts
 - Bright!
 - Lorimer burst: 30 Jy



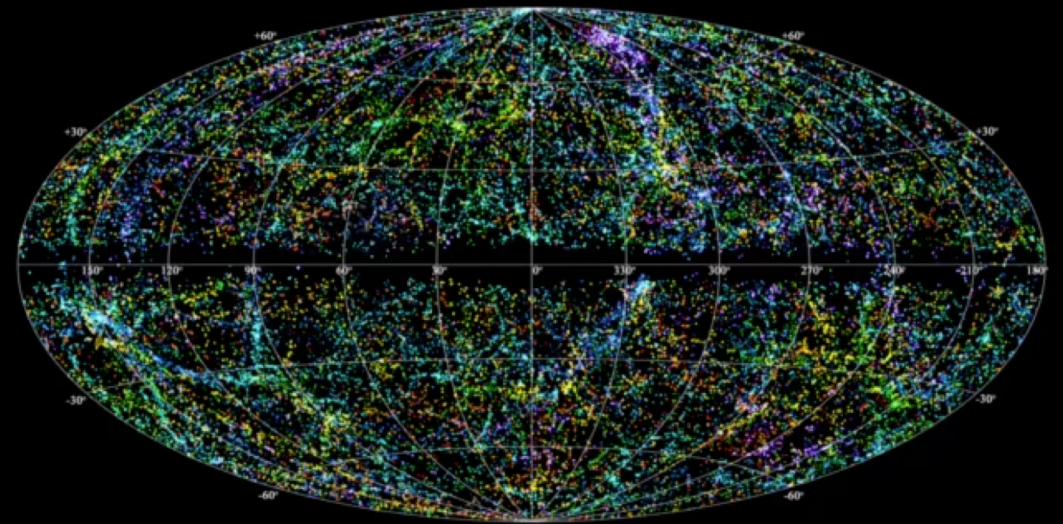
FRB 010724 – Parkes Telescope

What do we want to learn from an FRB survey?

- What are the properties of fast radio bursts?
- Is the distribution of fast radio bursts isotropic?
- How many fast radio bursts repeat?
- Where do fast radio bursts come from?

Searching for FRBs with CHIME

- What characteristics will help us to find FRBs?
 - Large field-of-view
 - Lots of observing time
 - Appropriate frequency range
 - Appropriate time & spectral resolution

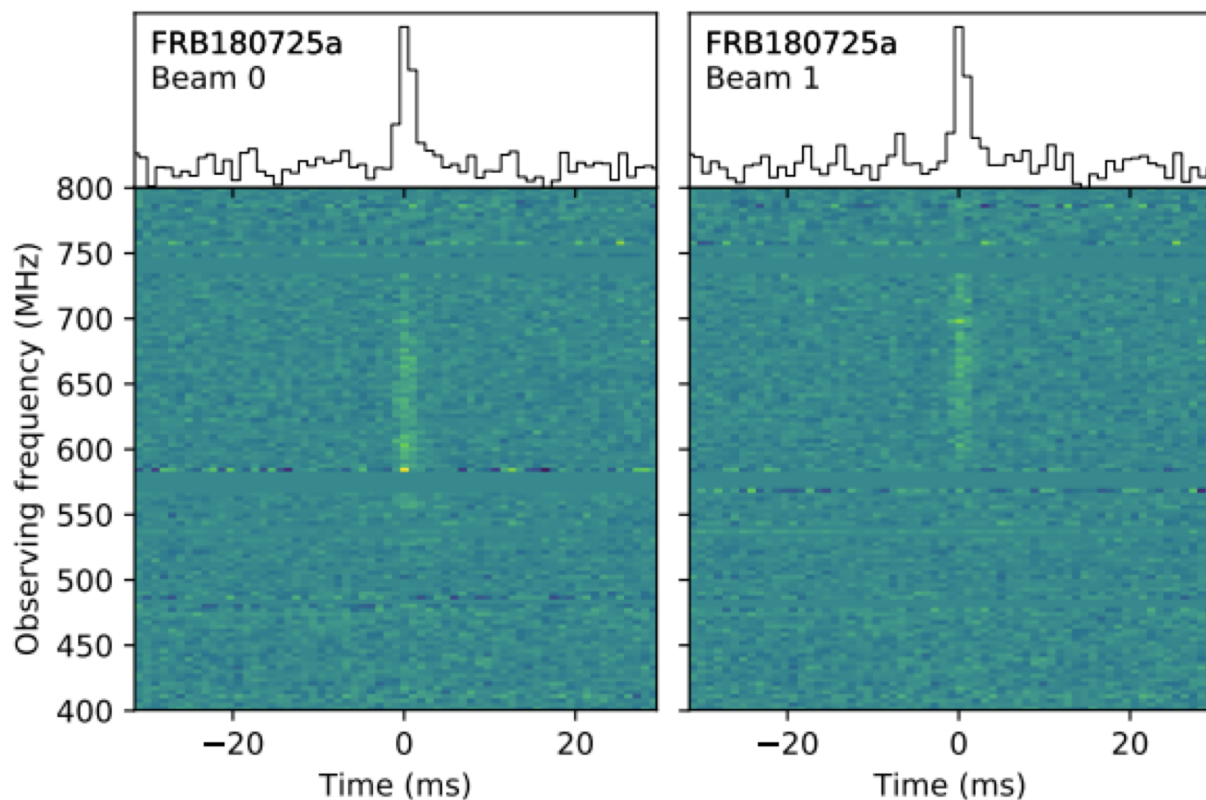


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Parameter	CHIME/FRB Value
Collecting Area	8000 m ²
Frequency Range	400-800 MHz
E-W FoV	2.5-1.3°
N-S FoV	~110°
Number of beams	1024
Beam Width	40' – 20'
FRB search time resolution	0.983 ms
FRB search spectral resolution	24.4 kHz

First results from CHIME/FRB



Parameter	FRB 180725 Value
Dispersion Measure	716 pc/cm ⁻³
Frequency Range	>580 MHz
RA Beam 0	06:13:54
Dec Beam 0	+67:04:00.1
SN Beam 0	20.6
RA Beam 1	06:12:53.1
Dec Beam 1	+67:03:59
SN Beam 1	19.4

What comes next?

- More detections!
- Better understanding of our instrument. Some key questions
 - Detection rate
 - Beam effects
 - Understanding our RFI environment.

In Conclusion



a place of mind



- Fast Radio Bursts are an intriguing new class of radio transients.
- CHIME/FRB is a new and exciting instrument for detecting fast radio bursts.
- CHIME/FRB has submitted two papers, demonstrating 13 new FRB including 1 repeater (with 6 bursts).

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