


What Technical Capabilities are needed for New Discoveries at Radio Wavelengths?

Panel Members

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The Scientific Method



Hypothesis
Experiment
Data
Analyze
Conclusions



Radio Astronomy Discoveries

- Cosmic radio emission
- Non-thermal radiation
- Solar radio bursts
- Radio galaxies
- Cosmic evolution
- Mercury/Venus rotation
- CMB
- Extra solar planets
- Radio Recombination Lines
- H_2O
- Jupiter bursts
- Gravitational waves
- Gravitational lensing
- Cosmic masers
- Quasars and AGN
- Pulsars
- HI rotation curves (Dark matter)

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Communications research



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Military Research

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Looking for something else

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Just looking

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Beware of theorists

Building telescopes

Jodrell Bank



- Designed by Lovell to detect CR echoes
- Shown to be wrong
- Forgotten or ignored by Lovell
- 250-ft telescope built anyway

Arecibo



- Arecibo was not built for radio astronomy
- Designed to detect ionosphere backscatter
- Strength of reflected signal underestimated
- Built anyway

What telescopes are known for is not what they were built for!



What is needed to optimize discoveries?

- Sensitivity
- Resolution
 - Spatial
 - Frequency
 - Time
- Field of View
- The right people
- Other?