New Horizons for Radio Astronomy

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New Horizons in Radio Astronomy

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Me: “Hi [redacted]…This week I am in Montreal at a meeting to dream up new Canadian radio projects.”

[redacted]: “How many new projects does Canadian astronomy need right now?”
Radio Astronomy Parameter Space

• Frequency Range
• Angular Resolution
• Spectral Resolution
• Sensitivity
• Polarization
• Time Domain
Is there Canadian interest in radio astronomy beyond the 50 MHz to 100 GHz range?
Angular Resolution

Do Canadians want access to micro-arcsecond resolutions for their science?
Spectral Resolution & Bandwidth

How high spectral resolution or instantaneous bandwidth do Canadians want?
Sensitivity & Mapping Speed

What levels in sensitivity are needed? What focal plane mapping instruments?

500 m Aperture Spherical Telescope (FAST)

Green Bank Telescope (GBT) w/ KFPA (K-band) and ARGUS (W-band)
How much polarization is left to study in the Universe?
Time Domain

Is a radio-LSST possible? If so, is it scientifically interesting?
PROVOCATIVE STATEMENTS FOR THE END OF THE DAY

• Radio photons aren’t as interesting as optical photons
• Canada is involved in too many telescopes already
• No project should be motivated by measuring $w=-1$
• Canada doesn’t need international partners
• Canada can easily commit to both SKA and ngVLA
• Too much planning, not enough science
STOOPID STATEMENTS FOR THE END OF THE DAY

• 21cm telescopes are very small telescopes

• We don’t have enough people
  But interferometry gives us hives
  And hives are full of workers
  So we can solve the man-power with interferometry!