Readout

- Time-Division Multiplexers (TDM) – Irwin
- MHz Frequency-Division Multiplexers (FDM) – Dobbs
- Superconducting Microresonator - Maloney

CMBPol readout requirements

1. Acceptable degradation of bolometer noise (compare to BLIP)
2. Suitable for multi-kilopixel bolometer arrays (sufficiently low lead count)

sensitivity

3. Low systematic error
   - Sensitivity to scan-synchronous B fields
   - Sensitivity to scan-synchronous vibrations
   - Electrical correlations, non-stationary noise
4. Low sub-K power dissipation (lead count and dissipated power) – question for cryogenics panel
5. Low power ambient temperature electronics
6. Prospects for flight qualification, cryogenic & ambient electronics
7. Sufficient stability – acceptable low-frequency noise and gain drifts. Constrains modulation & scan strategies

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Overall editorial comment

Both TDM and FDM should work for CMBPol, with different implementation challenges.

Superconducting microresonators are likely to be more scalable – whether they will be ready and flight qualifiable for CMBPol is an open question.