

Improving RF Detectors with Programmable Logic

Executive Summary

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Beamforming can provide significant improvement in radio neutrino detector sensitivity

Programmable logic suitable platform for low power, high performance digital beamforming

Capability evaluated vs. PUEO requirements

Beamforming prototype:

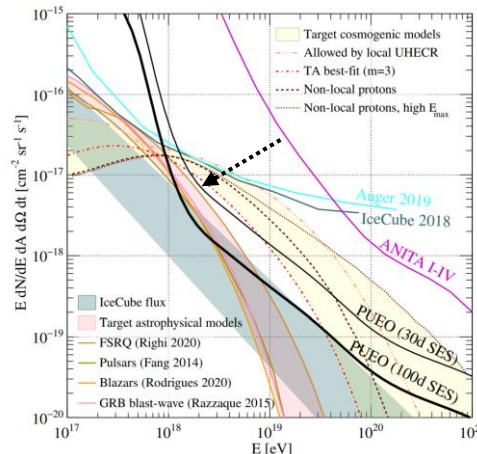
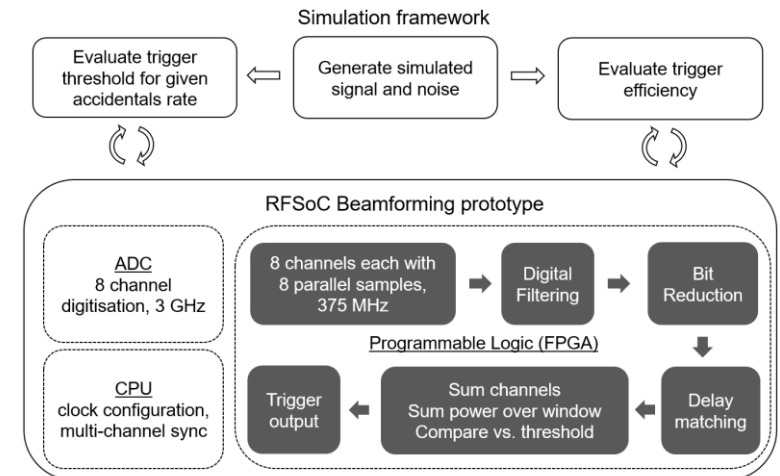
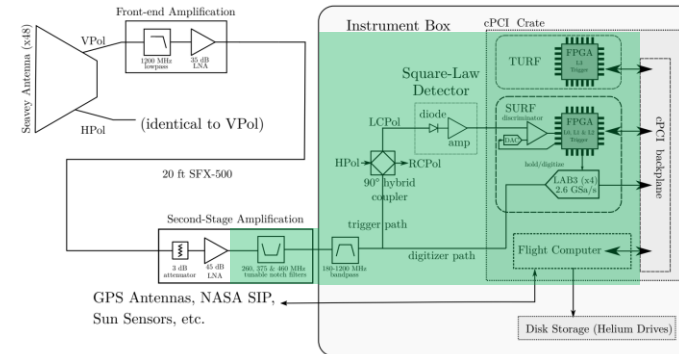
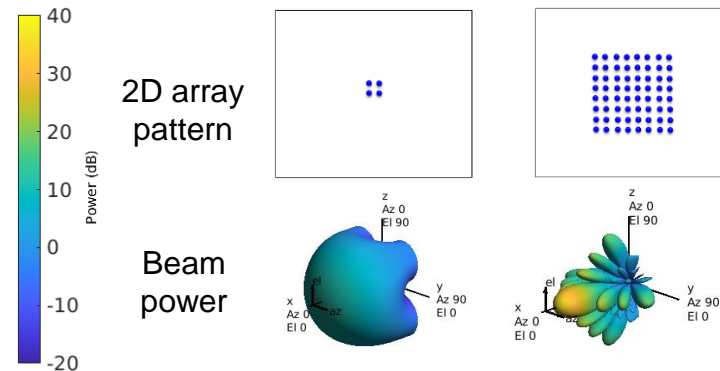
✓ Expected signal-to-noise enhancement

Beamforming resource requirements:

✓ 5-10% utilisation

Digital filtering:

✓ Possible with trade-offs and optimisations



Radio Detection with Programmable Logic (ICRC 2021)

Arxiv:
2010.02892