Hunting for cosmogenic neutrinos with the ARIANNA experiment

- **Science Goal:** Discovery of cosmogenic neutrinos
- Low event rate require instrumentation of huge volumes
  - detection of radio emission of ν induced in-ice showers
- Pilot stations located on the Ross ice shelf and at the South Pole
  - operating successfully for 4 years in harsh Antarctic conditions
**Cosmic-ray test beam**

- Cosmic-ray radio pulses are perfect calibration source
  - CR pulse very similar to neutrino signal
- Proof of detector capabilities under realistic conditions
  - ARIANNA station capable to reconstruct polarization

**Transient source sensitivity**

- ARIANNA's large effective volume results in high sensitivity to transient events
- E.g. coincident detection of neutrinos and gravitational waves from neutron star mergers

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**Recovered CR signal**

- Signal is mostly horizontally polarized (ePhi) as expected for cosmic rays (geomagnetic emission)

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