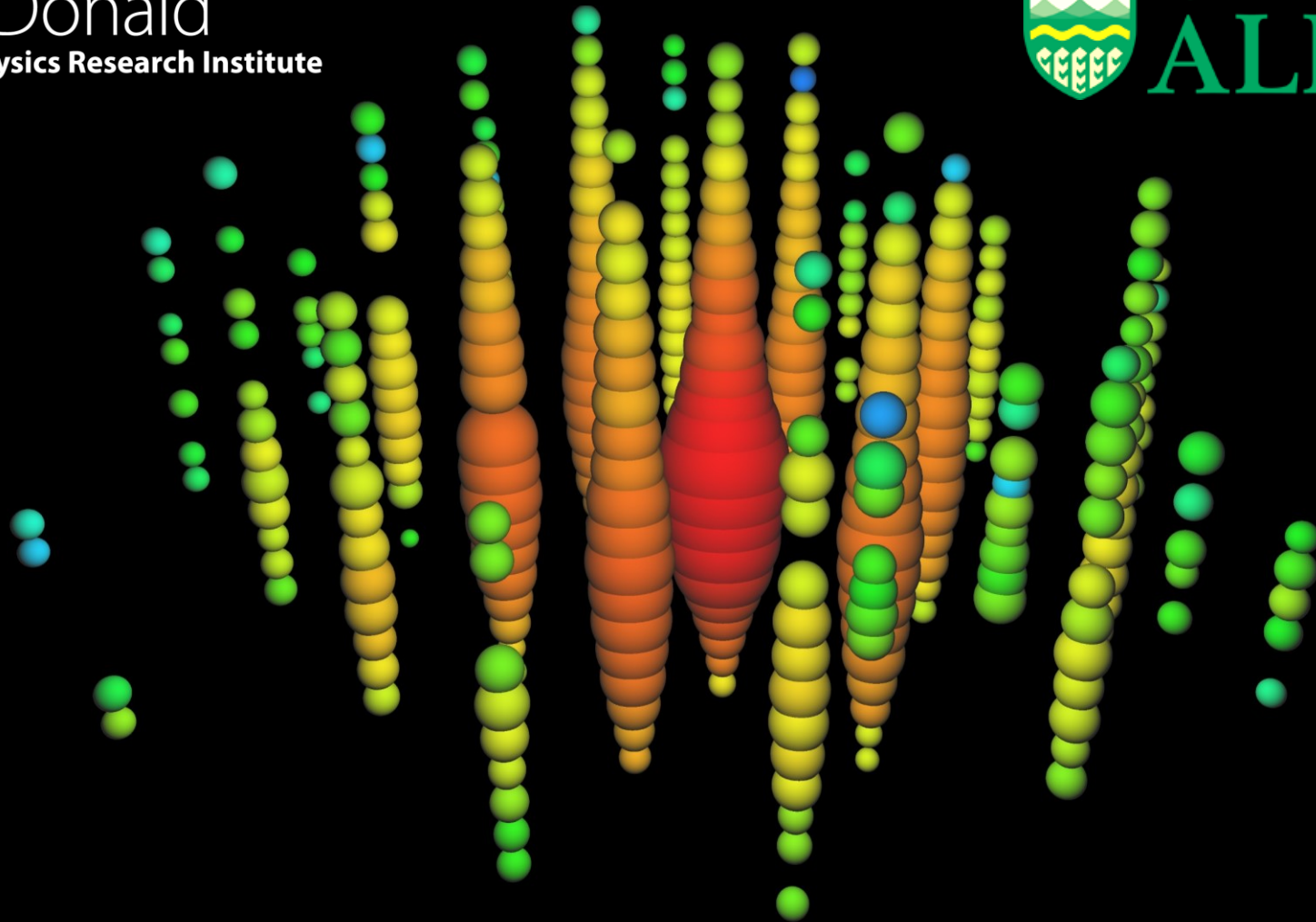




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# P-ONE physics program

Juan Pablo Yáñez

# Revisiting P-ONE physics case

- CFI comments from the expert committee
  - Agreed with the physics case being strong
  - Wanted more Canadian buy-in
  - Made a one-line comment on claims made in comparison with existing observatories could have been better supported
- Note that in the proposal we based any comparison on:
  - Sea water vs ice (IceCube comparison)
  - Time-over-threshold vs mDOM full digitization (ANTARES)

# Revisiting P-ONE physics case

- From the Multidisciplinary Assessment Committee
  - Pathfinder project oversold, sufficient comparison not provided
  
- What to focus on towards the next competition?

# Neutrino astronomy program

- Future: water, ONC, scalability
- P-ONE: Looking at the horizon, new part of the sky
  - Fast live trigger for other experiments
- Cross-calibration using POCAMs
- Tau neutrino searches, pushing to lower E's

# Particle physics program

- Muon multiplicity for CR physics
  - Muons in bundles connection to composition
- Hadronic interactions studies with atmospheric muons
  - Relative pion/kaon production
- Differential cross section (inelasticity)
  - Need to see the interaction clearly (water)
- Search for sterile neutrinos (atmospheric)
  - Cross check of IceCube's weak hint

# For first round

- We wrote down all topics that we could access with P-ONE
  - In some of them we should be really good
  - We were “over-selling it”
- Strategy moving forward
  - Focus on one, two specific topics?
  - Do the full analysis?
  - Focus on expected performance on specific aspects?
  - Focus on the capabilities of the mDOM in water?
- Time at the end of the session to discuss the focus for next year