Towards a Canadian contribution to the EIC Accelerator system

- The EIC will require crab cavity systems in both the hadron ring (HSR) and the electron ring (ESR) at both 197 MHz and 394 MHz
- TRIUMF is pursuing funding to support contributions to the 394 MHz crab cavity systems
  - The present layout of the EIC foresees four 394 MHz cavities for the HSR, and two 394 MHz cavity for the ESR
  - The cavities would be assembled into cryomodules with helium jackets, tuners, fundamental power couplers and higher order mode (HOM) mitigation schemes
- Initial work has been done modeling the HOM damping requirements
Towards a Canadian contribution to the EIC Detector system

EIC Canada focus areas

**Hardware:**
- **Calo:** Si–pixel imaging + SciFi hybrid barrel
- **Barrel ECAL Technical Coordinator:** Z. Papndreou
- **Building towards significant CFI–IF proposal for Calorimetry in 2025 competition**

**Simulations:**
- **ePIC Software WG co–convenor:** W. Deconinck
- **Software framework:** community–oriented (dd4hep, edm4hep, ACTS)
- **Novel AI work:** inner tracker design optimization, calo design using hierarchical density-based clustering
- **Event generators:** far forward region studies (ZDC, B0)
- **Physics:** Meson Form Factors at high $Q^2$ XYZ Spectroscopy
  - Charged lepton universality ($e\rightarrow\tau$)
Towards a Canadian contribution to the EIC

- Canadian funding is generally through proposal-driven processes at NSERC and CFI
- CFI supports research infrastructure
  - IF25 call now out
  - ePIC and acc proposals in development (university led)
- NSERC supports research groups
- Federal Budget 2024 announced a ‘capstone’ organisation to help advance internationally collaborative, mission driven and multidisciplinary research
  - Details to come later

**CFI Infrastructure Fund 2025: key Canadian capital stream**

**Important dates**

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<thead>
<tr>
<th>Activity</th>
<th>Deadline</th>
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<tr>
<td>CFI issues draft call for proposals</td>
<td>Apr 18, 2024</td>
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<tr>
<td>Deadline to submit feedback on the draft call for proposals</td>
<td>May 17, 2024</td>
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<tr>
<td>CFI issues call for proposals</td>
<td>Jun 4, 2024</td>
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<td>Deadline to submit notices of intent</td>
<td>Oct 1, 2024</td>
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<td>Deadline to submit proposals</td>
<td>Jan 21, 2025</td>
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<td>Review by Expert Committees</td>
<td>Mar to Jun 2025</td>
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<td>Review by Multidisciplinary Assessment Committees</td>
<td>Sept 2025</td>
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<td>Review by Special Multidisciplinary Assessment Committee</td>
<td>Oct 2025</td>
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<td>Decision by CFI Board of Directors</td>
<td>Nov 2025</td>
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