

Case for a hire on a future collider

- What's the future of collider physics? Beyond LHC, strong physics motivation for a Higgs factory for precision measurement (1% level) of Higgs properties
 - Will also provide strong constraints on BSM physics via Higgs
 - Max's 5YP slides [here](#)
- Which collider? Not yet sure. But there needs to be one, it should be on a fast timeline to follow the LHC. Candidates include ILC (~2035ish), CCC (~2040ish), FCC-ee (~2045-2050, potentially less exciting option because of long timescale)
- TRIUMF should take a leading role (ideally both accelerator and particle physics) in next collider from the first steps, as it will be one of the most important global projects
 - Aligns with both our expertise, thanks to LHC/ATLAS history and earlier, and our stated mission: 20 year vision draft states TRIUMF should be “A global leader in discovery science, [...] strengthening Canada's leadership in groundbreaking frontier particle & nuclear physics”

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- For ~2040 start date, HEP community should be beginning serious R&D by ~2025 and construction by early 2030s
 - Various detector designs already well studied so not starting from scratch
- Anticipate comment from Snowmass/P5 expressing support (2023); American efforts then will ramp up in following funding cycle (~2025)
- HL-LHC runs til ~2038 but we need to be seriously involved in future collider project well before then: thus cannot reallocate (all of) existing ATLAS person-power to this project
- If we wait past 2030 to get seriously involved, we risk taking a smaller role
- Solution: new hire on future collider near end of 2025-2030 5YP?
 - Possible synergies with detector development initiative: could aim for physics + detector contributions for new hire role