

CFREF 2 - The Sequel

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The McDonald Institute

- Funded by CFREF in what was the second call (application to the first was not successful)
- Total of roughly \$64M awarded to a group of participants made up of U of A, UBC, Carleton, Laurentian, McGill, U de Montréal, Queen's, and U of T
- Intended to primarily support SNOLAB-based projects
- Hired 15 faculty across Canada, direct support for ~200 positions in total
- Money has an expiry date of 2023 (mostly...)



CFREF Call #3

- Call announced in mid-2021, Lol was due April 5 2022
- Full application due August 31, 2022
- Results and money flow in winter 2023 for a total of \$1.4B budgeted over 7 years
- Each institute in Canada only allowed to put in one application (though they can be partners on many)
- Cannot be seen as a renewal of the existing effort
- 33 LOIs received and adjudicated, 26 invited to go forward (totalling just over \$3B)



CFREF Proposal

- Title: Unravelling the Cosmos: A global approach to advance science and innovate technology with astroparticle physics
- Total request: ~\$120,000,000
- Participants: U of A, UBC, Carleton, McGill, U de Montréal, Queen's, Sherbrooke, SFU, U of T, U Victoria
- Partners: CIFAR, CITA, IPP, Perimeter, SNOLAB, TRIUMF



Science Areas of Focus

- Support for neutrinoless double beta decay
 - Flagship experiments coming to Canada/SNOLAB
- New dark matter programs
 - Exploring new frontiers with Darwin, ARGONIE, SuperCDMs, SBC, etc
- Multi-messenger physics
 - Includes neutrino astronomy with programs such as P-ONE
- Precision neutrino measurements
 - Supporting leadership in T2-HK program



Supported Initiatives

- Integrated Project Delivery Centre: Engineers (~22) spread across 5 hubs
- Sudbury Science Institute: Research space, offices, logistics (accommodations, transportation,...) to increase engagement with SNOLAB
- Technology developments — SiPMs: Faculty and engineers to focus on use in future detectors, particularly based on liquid nobles
- Technology developments — Low background studies: faculty positions, connections to chemistry, hot lab in Sudbury



Supported Initiatives

- Technology developments — Big Data: faculty positions, fostering connections to other groups
- Theory Hub: faculty hire and coordination of efforts
- Targeted Faculty: supporting the primary science program as well as STEM education
- Competitive funding: support for both personnel and hardware



TRIUMF Specifics

- Summary of items in the budget
 - One of the engineering hubs will be in the Vancouver area, with two engineers hosted at TRIUMF
 - The program concerning SiPM development will be supported
 - General funding in line with that at the other institutions
- Support comes out to ~\$6M



What happens now?

- Continue the writing of the full application
- Keep consulting the community to make sure we're on the right track
- Submit the whole thing at the end of August
- Cross our fingers

