

THE LONG-RANGE PLAN FOR CANADIAN SUBATOMIC PHYSICS: 2022-2026

TERMS OF REFERENCE

I. CONTEXT

The Canadian subatomic physics community establishes its scientific, and thus funding, priorities through five-year Long-Range Plans (LRP). These plans advise the Canadian subatomic physics research community and relevant stakeholders on priorities for both current and future endeavours. The most recent Long-Range Plan covered the period 2017-2021, in addition to providing an assumption-based forecast for into 2026. A new LRP exercise is to be conducted. The new plan will be in effect from 2022 through 2026, with its scope extending through 2036. A renewal of this 2022-2026 plan will occur before 2026. The Canadian Subatomic Physics Long-Range 2022-2026 is jointly supported by the Institute of Particle Physics (IPP), the Canadian Institute of Nuclear Physics (CINP) and the Natural Sciences and Engineering Research Council (NSERC). The additional stakeholders, TRIUMF, SNOLAB, the Perimeter Institute and the Canadian Foundation for Innovation (CFI), are supportive of this process.

II. COMMITTEE

The LRP process will be driven by the Canadian subatomic physics community. A Committee will be asked to review this community's input and to formulate the Long-Range Plan. The LRP Committee will be composed of an appropriate number of experts who will cover the main sub-disciplines of subatomic physics in Canada, including both experimental and theoretical aspects: nuclear physics, nuclear astrophysics, physics of elementary particles and fields, and particle astrophysics. The Committee will be co-chaired by senior members of the research community with an extensive knowledge of the Canadian and international subatomic physics research environments. The membership may have some overlap with that of the previous LRP Committee to ensure continuity.

The following representatives from the LRP commissioning bodies will be non-voting members on the LRP Committee.

- Director of the Institute of Particle Physics
- Executive Director of the Canadian Institute of Nuclear Physics
- NSERC Team Leader working with subatomic physics
- Co-Chairs of the NSERC Subatomic Physics Evaluation Section for 2020-2021

In addition, the LRP Committee will invite *ex officio* members who will be non-voting observers and resources for the other members:

- TRIUMF Director
- SNOLAB Director
- Perimeter Institute representative
- CFI Director of Programs working with subatomic physics

The LRP Committee may choose to hold certain closed sessions without the presence of *ex officio* members.

III. MANDATE

Taking into account (i) the ever increasing internationalization of projects and collaborations in addressing the fundamental questions of subatomic physics, (ii) the concurrent requirement to maintain and further develop world-class domestic research programs and infrastructure, (iii) the established expertise and strengths of the Canadian community and (iv) the recognition of the fact that the Canadian subatomic physics community cannot be involved in all research endeavours, the Committee is asked to identify subatomic physics scientific ventures and priorities that should be pursued by the community on a five to fifteen-year horizon and that would ensure continuous Canadian global scientific leadership. Budgetary estimates, both for new capital investments as well as for operations, must be provided as well, including funding ranges for prioritized endeavours. These ranges should include funding levels that would allow for a restrained, yet efficient, contribution to the ventures, as well as levels that would enable a more extensive contribution.

The Committee's assessment will be based on a broad consultation with the Canadian subatomic physics community. The Committee will have to assess the feasibility, technical readiness and risks associated with particular endeavours. It is crucial that such an assessment be made through a fair and rigorous process.

The Committee is also asked to consider and discuss factors that affect the subatomic physics community and to make recommendations on how to possibly lessen any negative impacts they may have, or enhance any positive ones. Examples of such factors include, but are not limited to, various funding opportunities, the relationship between funding agencies and other organizations, the activities of national research organizations, and the international context.

The report should address Equity, Diversity and Inclusion as well as supporting early career researchers within the context of the subatomic physics research community.

IV. PROCESS AND TIMELINE

The LRP Committee membership recruitment will be completed by Spring 2020, and a kickoff meeting will be held immediately after. NSERC staff will coordinate membership recruitment in consultation with the Committee Co-Chairs as well as CINP and IPP.

CINP and IPP will be tasked to prepare briefs for the LRP Committee. These briefs must summarize the scientific vision and priorities put forward by the sub-communities they represent and serve, including both experimental and theoretical facets. Overall recommendations may also be included in the briefs. It is expected that each institute will broadly consult with the sub-communities through various formats and ensure a fair and rigorous process. The briefs are to be submitted to the LRP Committee and to NSERC no later than December 1, 2020. The Institutes must ensure that the briefs are available to the entire community through their public Web sites. Eventual responses to the briefs by individuals or organizations would be accepted. Throughout the process, the LRP Committee may also solicit additional input from various sources, as it sees fit.

The LRP Committee will hold public consultations (town hall meetings) in early 2021, after receiving the briefs. Face-to-face or phone meetings of the Committee will then be held up to the Summer of 2021.

V. Deliverables

The LRP Committee will submit its final report to NSERC, CINP and IPP no later than September 30th, 2021. The report will be publicly released, thereafter, in both official languages.

VI. CONFLICTS OF INTEREST AND CONFIDENTIALITY

All members must strictly comply with the Code of Ethics and Business Conduct for Members of NSERC Standing and Advisory Committees. Moreover, for the purpose of this exercise, a member will be considered to be in a situation of conflict of interest during a discussion on prioritization of a specific endeavour that would directly benefit the member or the member's organization.
