

1st meeting of the CERN-Canada (TRIUMF) Committee

27 April 2016

Present:

CERN: O. Brüning (HL-LHC Deputy Project Leader),
R. Losito (Engineering Department Head),
S. Foffano (Scientific Secretary),
E. Tsesmelis (Head of Non-Member State Relations, Chair)

TRIUMF (remote): D. Furseth (Interim CTO of Advanced Applied Physics Solutions)
R. Kruecken (Deputy Director)
B. Laxdal (Interim Associate Laboratory Director for Accelerators)

The agenda and meeting material is available from INDICO at the following link:

<https://indico.cern.ch/event/521517/>

Welcome and Introduction

E. Tsesmelis welcomes participants to the 1st meeting of the Committee, introduces himself, and asks all participants to introduce themselves.

Following the visit of the TRIUMF Director in January 2016, the Committee has been reinstated with the aim of identifying areas of collaboration in order to build up expertise in areas of mutual benefit to both laboratories.

Summary of Agreements between CERN and Canada (TRIUMF) – E. Tsesmelis

E. Tsesmelis summarises the Agreements between CERN and Canada (TRIUMF) that are currently active:

- Accord de Cooperation concernant la cooperation scientifique et technique entre le Canada et le CERN (1996)
- Technical Protocol to the Co-operation Agreement concerning the scientific and technical co-operation between CERN and Canada (1996)
- Protocol on Legal, Administrative and Financial Provisions to the Co-operation Agreement concerning the scientific and technical co-operation between CERN and Canada (1996)
- Extension to the 1996 Co-operation Agreement concerning the scientific and technical co-operation between Canada and CERN (2002)
- Protocol to the Co-operation Agreement concerning a contribution by TRIUMF to the upgrade of the CERN accelerators (2009)

E. Tsesmelis points out that Canada is an excellent partner on the scientific and technical level. It is timely to strengthen the collaboration, not only on the scientific level, also on the political level. Since 2010, irrespective of their location, countries are invited to join CERN in the context of the CERN Geographical Enlargement Policy.

R. Kruecken adds that CERN is a strategic partner for TRIUMF, there is a common interest in prolonging and strengthening the collaboration.

Status Report on TRIUMF Research - R. Kruecken (slides attached)

R. Kruecken presents an overview of TRIUMF, the national laboratory for particle and nuclear physics and accelerator-based science. Owned and operated as a joint venture by a consortium of 19 Canadian universities, TRIUMF acts as a gateway to the world in terms of innovation, technology and societal advancement.

The activities of the laboratory are outlined including contributions to ATLAS, LHC Computing with the TRIUMF Tier-1, ALPHA, neutrino physics, and the Isotope Separator

and Accelerator (ISAC) facility for rare-isotope beams, which is in friendly competition with ISOLDE. The various areas where further collaboration would be beneficial are highlighted.

E. Tsesmelis asks about the future plans for the Tier-1. The upgraded hardware will be located at the Simon Fraser University (SFU), however TRIUMF will run the facility. Detailed planning is currently being defined, the aim is to start operating with a full dataset at SFU in late 2017.

Status Report on HL-LHC – O. Brüning (slides attached)

O. Brüning presents an overview of CERN, the LHC and its performance, the luminosity goal of the High Luminosity LHC (HL-LHC) Project, the technical bottlenecks, challenges and timescale.

Given the history of involvement of Canada in the production of warm quadrupole magnets for the cleaning insertions there is a high interest to continue the collaboration, particularly in view of the 56 new warm quadrupole magnets needed, either by full refurbishment or redesign, before Long Shutdown 3 in 2024. Technical experts from TRIUMF have visited CERN and the identification of partners for the project is currently ongoing, therefore formalization of such a collaboration would be very timely.

R. Kruecken confirms discussions are advanced and Alstom-Canada is interested in participating, furthermore the expert who was involved in the design of the original magnet is still available. A funding proposal is being prepared however the result will not be known before June 2017. Alternative funding avenues are also being explored.

In order to formalise the interest, an Expression of Interest should be formulated by Canada by autumn 2016. E. Tsesmelis offers to provide a draft via the CERN Legal service. The next HL-LHC meeting will take place in Paris in October 2016, where TRIUMF would be welcome to join the discussion on future collaboration.

R. Kruecken mentions the beam dynamics studies which could be expressed as work-packages and included with the Expression of Interest. O. Brüning will define possible work-packages following discussion with the work-package leader.

Status Report on ISOLDE – R. Losito (slides attached)

R. Losito presents the ISOLDE operations and future plans including the facility upgrades. He highlights the areas of potential collaboration between TRIUMF and CERN including target and ion-source development, high resolution mass separation, superconducting RF cavities, nuclear engineering and scientific exchange on the presentation and publication of isotope production rates. Informal collaborations already exist in these areas although TRIUMF is not a member of ISOLDE.

R. Laxdal added that TRIUMF would be very interested to collaborate also in other areas of beam acceleration and transport, e.g. on beam instrumentation.

R. Kruecken confirms all the areas presented are of interest to TRIUMF and asks how this can be formalized. E. Tsesmelis suggests a new Protocol addressing all ISOLDE related areas.

Discussion and Next Steps

In the context of scientific exchange, R. Kruecken asks about possibilities for student exchanges, specifically summer students and Doctoral students. E. Tsesmelis explains each year 5 Canadian students join CERN as part of the Summer Student Programme, the Doctoral Student Programme is restricted to Member or Associate Member States. Student exchange between Canada and CERN could be added to the new ISOLDE Protocol and any new collaboration agreements signed.

There is also an interest in exchanging information between the two laboratories about the general approach to Technology Transfer. E. Tsesmelis suggests inviting G. Anelli to present at the next meeting and the commercialization expert from TRIUMF can also be invited to attend and share his experience. E. Tsesmelis mentions that being Associate Member of CERN relieves certain restrictions with respect to Technology Transfer and its implementation in other countries. To be followed up on at the next meeting in view of the CERN-TRIUMF-KEK linear collider collaboration.

E. Tsesmelis thanks participants for the useful exchange of information highlighting the synergies and future collaboration possibilities. He suggests a next meeting in September or earlier if it can help finalise and sign the new Protocol or new collaboration agreements.