

Explanatory input on MS27

Author: Vitaly Vorobyev

Table of Contents

1. Definitions and motivation
2. Reasons for the implementation delay
3. Plan for implementation
4. Risk assessment

Definitions and motivation

The milestone MS27 “Kick-off meeting of international collaboration around the SCT detector” is devoted to launching a formal collaboration around the SCT experiment. The formal collaboration is a partnership of scientific organizations and universities (parties). It minimally implies:

- A document signed by all parties (e.g., memorandum on partnership, MoP)
- A decision-making body where each partner is represented (Institutional Board, IB)
- Elective positions that represent the partnership (e.g., spokesperson)

Formal collaboration of research organizations is a standard for managing experiments in the field of particle physics. In the case of the SCT experiment, only minimal formalization is needed now (as of Summer 2021). The reason is that SCT experiment approval is not finalized yet and it is not fully funded. Nevertheless, a formal collaboration is needed as a decision-making body on planning the SCT experiment and a body to communicate these decisions to the SCT experiment host laboratory.

The kick-off meeting of international collaboration around the SCT detector is an event marking **the** launching formal collaboration around the SCT experiment.

Reasons for the implementation delay

The MS27 has not been reached by the month-18 but is expected to be reached with a 6-month delay. There are two independent reasons of the delay:

1. The COVID-19 pandemic. MS27 requires signatures of managers of research organizations. The pandemic hampered direct negotiations at managerial level between Budker’s Institute (the coordinator of establishing collaboration) and other parties. The original plan was to make a series of seminars devoted to the SCT project at all potential partner organizations and to reach agreement on participation in the formal collaboration.
2. Changing the status of the SCT project in Russia in 2020. In particular, the probable location for the SCT experiment has changed from Novosibirsk to Sarov, and probable host laboratory has changed from BINP to state corporation ROSATOM. The change of the SCT project status



must be reflected in the collaboration agreement. Adjusting the collaboration agreement took some time and led to a several months delay.

The second circumstance is positive for the SCT project since gaining support of this new strong partner (state corporation ROSATOM) significantly increases the probability for project implementation on the short term. The decision of establishing formal collaboration in 2021 has been confirmed by BINP and ROSATOM management in Spring 2021. The plan for implementation is described in the next section.

Plan for implementation

MS27 is going to be reached by M24. The preliminary target date is November 26th, 2021. BINP, as the coordinator, proposes to each partner to sign the Memorandum of Partnership (MoP). The MoP defines the following structure of the partnership:

1. Coordinator laboratory (responsible for organization and coordination): BINP
2. Institutional board (IB) – representatives of all organizations on equal basis
3. Spokespersons – Russian and international – appointed/elected by IB
4. Other positions/committees appointed at the discretion of IB

Responsibility of each partner organization is:

1. Participate in IB work
2. Facilitate development of the SCT experiment on a best effort basis

No other obligations if not specified explicitly.

The goal of the SCT Partnership is the Development and planning the SCT experiment (physics program and detector).

The scope of the SCT Partnership is defined with following points:

1. Framework for cooperation around the SCT experiment
2. Coordinating efforts of the partners
3. Building consensus on critical aspects of the SCT experiment planning and relaying it to the officials
4. Preparation of the full-scale collaboration

The scheme of interaction between SCT Partnership and external bodies is shown on figure 1.



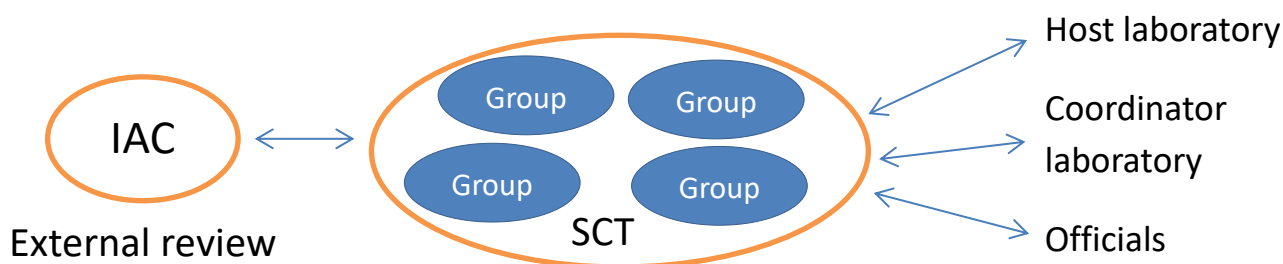


Figure 1. Communication scheme of the SCT partnership. The partnership unites several scientific groups. External review of the SCT partnership is carried by the international advisory committee (IAC, already established). The SCT partnership interacts with the SCT host laboratory and officials via well-defined interfaces.

The potential parties (but not confirmed yet) of the SCT Partnership are:

1. Russian organizations
 - a. BINP, Novosibirsk
 - b. Lebedev Physics Institute, Moscow
 - c. Novosibirsk State University
 - d. Novosibirsk State Technical University
 - e. Moscow State University
 - f. Institute for Nuclear Research, Moscow
2. European organizations (mainly CREMLINplus WP5 partners)
 - a. INFN institutes: Lecce, Bari, Frascati, Ferrara
 - b. Giessen University
 - c. GSI, Germany
3. Chinese organizations
 - a. IHEP, Beijing
 - b. USTC, Hefei
4. International organizations
 - a. JINR, Dubna

Current efforts of the BINP team are concentrated on communication with scientific and administrative departments of the potential partners to find optimal content of the MoP and to hold the kick-off meeting in fall 2021.

A preliminary draft of the MoP is in annex of this document. The text of SCT MoP is based on the CLIC experiment Agreement on Partnership.

Risk assessment

We are quite confident that the SCT Partnership will be established by the M24. Nevertheless, we should consider the following risks.

1. Decision on participation in the SCT Partnership is to be made by management of each partner. We cannot guarantee that positive decision will be reached within this delay in all cases.
2. Legal issues. The wording of MoP must be chosen very carefully to avoid subtle legal issues. In particular, issues related to intellectual property should be clear. Refining text from this point of view can complicate the negotiation process in some cases.
3. Rapid change of the SCT project status in Russia. Rapid change of the implementation status of the SCT project can make the suggested collaboration structure inappropriate. Adjusting the structure accordingly may delay the launching process.

