

Governance of the Molecular and Materials Science Experiment Evaluation Committee

1. Preamble

The purpose of the Molecular and Materials Science Experiments Evaluation Committee (MMS-EEC) is to review new research proposals and advise TRIUMF's Physical Sciences Division Associate Laboratory Director (ALD-PSDiv) on the feasibility of such research proposals and the allocation of beam time in appropriate priority sequence. It also reviews the progress of ongoing experiments. The MMS-EEC reviews proposals in the fields of condensed matter physics, material science, physical chemistry and biochemistry that wish to use the μ SR and β -NMR/ β -NQR facilities of the Centre for Molecular and Materials Science (CMMS) at TRIUMF. The MMS-EEC also reviews scientific proposals to use TRIUMF's proton- and neutron irradiation facilities (PIF & NIF) and to perform muon irradiation experiments (MIF). (This is following TRIUMF's own processes as outlined in TSOP-07.)

2. Composition of the MMS-EEC Committee

The MMS-EEC committee is composed of the ALD-PSDiv (*ex officio*), a Scientific Secretary (*ex officio*), a Chairperson and a number of regular MMS-EEC committee members as appropriate for the number of proposals and range of expertise needed. There are currently seven regular members. All committee members are invited by the ALD-PSDiv and are listed on the TRIUMF website.

2.1 Associate Laboratory Director Physical Sciences Division (ex officio)

The ALD-PSDiv participates in the MMS-EEC process to ensure that the process detailed in this document is followed. The ALD-PSDiv will receive recommendations from the MMS-EEC about the number of shifts and priority that a proposal receives.

2.2 Scientific Secretary (ex officio)

The Scientific Secretary is a local expert who oversees the organization of the MMS-EEC process and assists with logistics. The Scientific Secretary is appointed by the ALD-PSDiv. There is no set term for the Scientific Secretary, but should rotate every 5 years

2.3 MMS-EEC Committee members

The MMS-EEC Chairperson should not be a TRIUMF employee nor have an active research program at TRIUMF to ensure objective and arms-length judgments. Regular committee members can have an active research program at TRIUMF. In cases of conflict of interest, this is announced, and the committee members are asked to leave the room and not participate in relevant discussions.

Members of the MMS-EEC will be appointed by the ALD-PSDiv upon the recommendation of the MMS-EEC chairperson and the Scientific Secretary. The committee members are selected based on their expertise in areas of physics, chemistry, and materials science appropriate for the ongoing scientific program at the TRIUMF Centre for Molecular and Materials Science. There will be a balance of scientific expertise (experimenters and theorists; physicists and chemists) and members will come from both universities and large-scale facilities in both the national and international scientific communities. TRIUMF will strive for gender balance and

promote diversity in the MMS-EEC committee. TRIUMF will also attempt to have representation from different geographic regions to use this process as a way to strengthen, enhance and promote the CMMS program at TRIUMF.

Each regular member serves for a period of three years. The Chairperson will often (but need not necessarily) be chosen from existing or former MMS-EEC members. The Chairperson serves a term of three years but may have a total committee membership term of up to six years.

3. Procedure for submissions

3.1 Regular Access

Approximately two months prior to each scheduled committee meeting, the Departmental Assistant of the Physical Sciences Division (DA-PSDiv) will send out a call for submissions, with a deadline set for submission, to all TRIUMF users representing national and international scientists from around the world. This call is distributed via email to registered TRIUMF users and posted on the TRIUMF webpage. The MMS-EEC committee meets twice per year, typically, in January and June.

Each Spokesperson(s) is asked to submit a proposal or progress report containing a concise summary of the scientific problem under investigation, with appropriate literature references; clear justification for the proposed experiment; the names of collaborators; support required from TRIUMF; a description of the experimental techniques to be used, naming the facility and secondary beam required; an analysis of beam time requirements; safety considerations. A detailed description of the information required for the proposal or progress report is given out in the call for submissions. It is up to the proponents of the proposal to make a convincing case for their research. As the requested shifts for experiments are typically oversubscribed by a factor of 2, not all research proposal will receive shifts.

The Spokesperson of a proposal is expected to be an active participant in the experiment and invested in its outcome. They are the contact person for TRIUMF in case of clarification or questions. The Spokesperson will often be the leader of the relevant research project but may also be a local representative of a research collaboration where the group leader is not an expert on μ SR, β -NMR/ β -NQR, or other TRIUMF experimental techniques. In some cases, it may be appropriate for there to be two spokespersons (e.g. one external User and one internal to TRIUMF), but more than two spokespersons should be the exception and must be discussed in advance with the Scientific Secretary, who will then consult the MMS-EEC Chairperson.

3.2 Rapid Access

Sometimes special circumstances may lead to a researcher's request for beam time outside the normal proposal cycle. Rapid Access is available for proposals that are urgent and should only be used in extraordinary circumstances. Suitable reasons for a rapid access proposal are: "*hot science*" experiments; a new material that has been discovered; samples with short lifetimes; PhD student or post-doc needing beamtime before their project ends; etc. The threshold for awarding a Rapid Access proposal is very high.

Applications are made by emailing the DA-PSDiv (sciencediv@triumf.ca) and the Scientific Secretary of the MMS-EEC. These applications are independent of normal proposal submission dates.

The Rapid Access proposal will consist of a one-page summary of the scientific problem under investigation and a justification for why Rapid Access is warranted.

The proposal will be evaluated by the MMS-EEC Chairperson and one other committee member selected by the MMS-EEC Chairperson and the Scientific Secretary.

If the proposal is deemed appropriate for Rapid Access by the MMS-EEC, it will be scheduled as soon as feasible by the facility involved. If it is not considered to require rapid access it will be deferred until the next regular MMS-EEC meeting, when a full proposal will be required.

The committee's written evaluation of the Rapid Access proposal will be included in the subsequent MMS-EEC report following the submission of the request.

3.3 Commercial Access

Commercial access to the CMMS or PIF/NIF facilities is not considered by the MMS-EEC.

4. Review of the submissions for μ SR and β -NMR/ β -NQR experiments

The Chairperson and regular MMS-EEC members will receive guidance from the ALD-PSDiv and Scientific Secretary as to how many shifts can be approved in each MMS-EEC meeting. This is based on the expected amount of beam to be delivered and the current backlog of approved shifts.

For each submission the Scientific Secretary, in consultation with the MMS-EEC Chairperson, will assign two committee members with appropriate expertise as first and second readers. The readers must have no conflict of interest regarding the proposal they evaluate.

The first reader assigned to each submission should lead the discussion during the MMS-EEC meeting for said submission. They will also be responsible for drafting the committee recommendation, with input from the second reader.

The first and second readers can communicate, typically via email with the spokespersons prior to the MMS-EEC meeting if they wish to clarify anything in the proposal or progress report. The correspondence must be copied to the Scientific Secretary and the DA-PSDiv.

The committee will discuss each proposal / progress report and reach a consensus concerning the number of shifts and their priority that they will recommend for allocation by the ALD-PSDiv. The submissions are evaluated according to criteria described in section 6.2. MMS-EEC committee members will recuse themselves from discussions concerning proposals where they are directly involved, either as spokesperson or team member. The Scientific Secretary does not vote on the proposals or provide input about the scientific case but will provide technical information to the committee when requested. The Scientific Secretary will recuse themselves from discussions concerning proposals where they are directly involved, either as spokesperson or team member.

The committee can request that a Spokespersons be available during the meeting either in person, via internet conference or telephone to answer questions from committee members. In exceptional circumstances Spokespersons can request to talk to the committee during the meeting. A request should be sent to the Scientific Secretary prior to the meeting and will be considered by the committee Chairperson. The Spokesperson is not to bolster the scientific case but can provide information about organization and logistics that is pertinent to the proposal / progress report, but which could not be included in the written submission.

Once the wording of the committee recommendation has been finalized, the first reader will send the report to the Scientific Secretary who will enter the recommendation on TRIUMF's Experiments Database in the Committee Recommendation's section and in the MMS-EEC report. The Scientific Secretary can edit the report for language and readability but will not alter the recommendations. The final report will be approved by the MMS-EEC committee.

Spokespersons must submit a progress report two years after the initial approval if they have not completed the experiment (i.e. used all of their allocated shifts) and the proposal will be closed unless the MMS-EEC sees a special reason to keep it active.

5. Review of the submissions for PIF/NIF/MIF experiments

For each submission the Scientific Secretary, in consultation with the PIF/NIF Facility Coordinator, assigns an external review member with relevant expertise to review the proposal or progress report.

The external reviewer will provide a short (half page) evaluation and make a recommendation to approve or not approve the proposal or progress report, with the number of shifts. The submissions are evaluated according to criteria described in section 6.2. The recommendation will be reported to the MMS-EEC. If the MMS-EEC concurs with the recommendation the Scientific Secretary will enter the recommendation on TRIUMF's Experiments Database in the Committee Recommendation's section and in the MMS-EEC report.

6. Evaluation

6.1 Ranking of Proposals / Progress Reports

The MMS-EEC will review proposals / progress reports and either

- **approve with high (H) priority** and recommend a certain number of shifts.
- **approve with medium (M) priority** and recommend a certain number of shifts. Proposals with medium priority will only be scheduled if there is beam time available that cannot be allocated to high priority experiments.
- **not approve**, if deemed technically unfeasible, if the scientific case has not sufficient merit, or if beam time is limited and the scientific case is less compelling than that of other proposals submitted. A proposal that was not approved cannot be resubmitted under the same experiment number.
- **defer** if the MMS-EEC feels that the information presented is not sufficient, or the MMS-EEC feels it does not have sufficient expertise to judge the case and as a result recommends that an external expert review be conducted. A deferred proposal is expected to be resubmitted as an updated proposal at the next MMS-EEC meeting. If an updated proposal is not

submitted at the next meeting, then the status of the experiment will be changed from “Deferred” to “Not Approved”.

6.2 Evaluation Criteria

The committee will consider

- the quality of the proposal based on scientific excellence and quality of the proponents, the timeliness of the proposal, taking into account technical feasibility.
- the potential economic impact and contribution to knowledge exchange and transfer.
- the training of highly qualified personnel.
- track record of successful beam times and publication of the proponents
- if there are sufficient personnel involved directly in the direction and running of an experiment. As a consequence, it is expected that a group leader or Spokesperson will have a limited number of concurrent proposals and active experiments.

When judging experiments of equal scientific merit, the committee will favour experiments that are closer to completion and are more likely to result in a publication. The MMS-EEC will also support proposals from early-career researchers and new users.

The MMS-EEC will assess the appropriateness of the number of beam days requested for the experiments proposed. This is done in consultation with technical experts at TRIUMF.

In the event that the MMS-EEC does not have appropriate expertise to evaluate a proposal, the panel will seek additional advice from external referees.

7. Feedback

The number and priority of approved shifts will be added to the Physical Sciences online applications (<https://mis.triumf.ca/science/dashboard.jsf>) immediately after the conclusion of each MMS-EEC meeting by the Scientific Secretary. Shifts awarded at a meeting can be used immediately.

The Scientific Secretary will collect the reports written by the first and second readers of each proposal and compile a report for each meeting. The MMS-EEC committee members are expected to submit their reports within one week of the end of the MMS-EEC meeting. The committee can include statements in the introduction to the report that it wishes to pass on to TRIUMF management.

All proposals (successful and unsuccessful) will receive feedback from the MMS-EEC. The recommended shifts and ratings will be communicated to the ALD-PSDiv who will take this recommendation into account and communicate the final approval to the Spokesperson(s). The reports on individual proposals will be sent to the spokespersons by email within three weeks of the end of the MMS-EEC meeting.

The final report of the meeting, which will only contain individual reports for proposals that have been awarded beam time, will be distributed to the ALD-PSDiv, MMS-EEC members and proposal Spokespersons by email. The report will also be available to the public on DocuShare.

The list of experiments is available online at the TRIUMF Experiments Database (<https://mis.triumf.ca/science/experiment/list.jsf>). Further aspects pertinent to the experiment management are outlined in TSOP-07 "Experiment Management Science Division".

A common user feedback questionnaire relating to service levels at the facilities has been developed. The outcome of the survey will be made available to the MMS-EEC committee members at the time of the meeting.