

Introduction

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Particle Physics Experiment Evaluation Committee, April 22nd, 2021

Particle Physics Experiment Evaluation Committee

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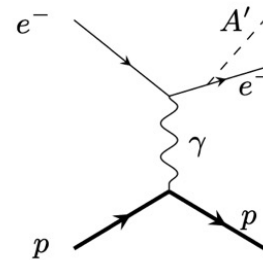
- Recent interest in carrying out more Particle Physics experiments onsite lead to the creation of the new Particle Physics - EEC
- The former SAP-EEC has been renamed to Nuclear Physics - EEC
- Terms of reference:
 - Approve proposals that have sufficiently high scientific merit and a realistic chance, based on the readiness of beams and experimental facilities
 - The purpose of the review is to advise TRIUMF on the scientific merit and technical feasibility of the experiment
 - Technical feasibility with respect to the beam is reviewed separately by the Beam Readiness Review Committee -> pre-proposal evaluation

PP-EEC

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- Four contributions
 - Search for New Physics in e^+e^- with an Invariant Mass of 13-17 MeV using ARIEL (Darklight)
 - LOI: Rare Pion Decays: PIENUX, 10 x precision on $R_{e/\mu}$ and Pion Beta decay
 - Search for a cosmologically-relevant boson in μ^+ decay
 - Progress Report TUCAN EDM Experiment

- Committee:
 - Natalie Roe (LBNL) chair
 - Concettina Sfienti (Mainz)
 - Deborah Harris (York/FNAL)
 - Ralf Kaiser (Glasgow)
 - Natalia Toro (SLAC)
 - Dave McKeen
 - Makoto Fujiwara
 - OSC (ex officio)



$$\mu^+ \rightarrow e^+ X^0$$

$$R_{e/\mu} = \frac{\Gamma(\pi^+ \rightarrow e^+ \nu(\gamma))}{\Gamma(\pi^+ \rightarrow \mu^+ \nu(\gamma))}$$



- Thank you again for agreeing to serve on this committee – much appreciated!

Evaluation Criteria

- Submissions shall be evaluated according to the following criteria.
 - The quality and timeliness of the proposal, taking into account technical feasibility
 - The uniqueness of the proposal to TRIUMF, whether due to the properties of the requested beam, or the unique technique or facility involved in carrying out the work
 - The scientific excellence of the proponents
 - The training of highly qualified personnel
 - The potential economic impact and contribution to knowledge exchange and transfer
- Side Note: PP-EEC report will go to TRIUMF's Policy and Planning Advisory Committee (PPAC) and can be used for support for seeking funding etc

Shifts and Beam time

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- With respect to the four contributions
 - Search for New Physics in e^+e^- with an Invariant Mass of 13-17 MeV using ARIEL (Darklight)
 - Practically no limit as ARIEL only requires beam starting 2026
 - LOI: Rare Pion Decays: PIENUX, 10 x precision on $R_{e/\mu}$ and Pion Beta decay
 - No shift assignments yet, since LOI
 - Search for a cosmologically-relevant boson in μ^+ decay
 - Requested few weeks which can be accommodated
 - Progress Report TUCAN EDM Experiment
 - Parasitic mode, no constraint

Evaluation Criteria

- Experimental Proposal
 - **approved** with high (H) or medium (M) priority and allocated a recommended number of shifts (that may differ from the requested number);
 - **not approved**, if deemed technically unfeasible, if the scientific case lacks sufficient merit, or if beam time is limited and the scientific case is less compelling than that of other proposals submitted; or
 - **deferred** if the PP-EEC judges that the information presented is insufficient or the PP-EEC lacks the expertise to evaluate the proposal. In the latter case the committee may recommend that an external expert review be conducted and should make reasonable efforts to obtain such a report prior to the meeting.
- Letter of Intent
 - **endorse** the Lol with high (H) or medium (M) priority or
 - **not endorse** the Lol if deemed technically unfeasible or if the scientific case has insufficient merit.
- Progress Report
 - For this year, only for introduction



Thank you
Merci

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