



Canadian Association  
of Physicists

Association canadienne  
des physiciens et physiciennes

Contribution ID: 3828    Type: **Poster not-in-competition (Graduate Student) / Affiche non-compétitive (Étudiant(e) du 2e ou 3e cycle)**

## (POS-1) Bound Muon to free Electron decay

*Tuesday 20 June 2023 17:34 (2 minutes)*

The study of muons is very important as they are at the center of several current discrepancies between the experiments and the theoretical predictions, such as the measurement of anomalous magnetic moment and rare decays of B-meson that involve muons. The best limits set in the charged lepton flavour violation are by the muon sector experiments. This is the time to focus on the experiments that involve muons as they can reveal new secrets. Our work is motivated by two large experiments under preparation, Mu2e and COMET, that will search for the very rare muon-electron conversion near a nucleus  $N$ , which is a beyond SM process. I am evaluating the bound muon lifetime for a range of nuclei including aluminum, which will be used as the target material in these experiments. I will also check the existing literature in preparation for the two important experiments.

### Keyword-1

Bound Muon

### Keyword-2

Decay rate

### Keyword-3

**Primary author:** MUBASHER, Muhammad (University of Alberta)

**Presenter:** MUBASHER, Muhammad (University of Alberta)

**Session Classification:** PPD Poster Session & Student Poster Competition (6) | Session d'affiches PPD et concours d'affiches étudiantes (6)

**Track Classification:** Technical Sessions / Sessions techniques: Particle Physics / Physique des particules (PPD)