

15th International Conference on Muon Spin Rotation, Relaxation and Resonance



Contribution ID: **110** Contribution code: **P-TUE-2**

Type: **Poster**

Reinventing the Muon Decay Channel

Tuesday, 30 August 2022 18:40 (20 minutes)

This work describes the new M9H muon decay channel at TRIUMF, which is specifically designed to deliver high quality transversely spin polarized beams. Transverse polarizations in both X and Y of ~80% over the momentum range 70-120MeV/c are expected. In contrast to a traditional z-polarized decay beam the key to accomplishing this task lies in the extraction an off-centre momentum-canted distribution of muons exiting the decay solenoid. We describe both the theoretical and practical considerations that have informed the design.

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Session Classification: Posters

Track Classification: New techniques