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Reinventing the Muon Decay Channel

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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.

Primary authors: Dr KREITZMAN, Sydney (TRIUMF); Dr ARSENEAU, Donald (TRIUMF); Dr KHOSRAVI, Mahdiar (TRIUMF)

Presenter: Dr KREITZMAN, Sydney (TRIUMF)

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