

PAUL SCHERRER INSTITUT



# Particle Theory Seminar

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“MadGraph/MadEvent with spin-2 particles”

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**Abstract:**

We added Fortran subroutines to calculate helicity amplitudes with massive spin-2 particles (massive gravitons), which couple to the standard model particles via the energy momentum tensor, into the HELAS library and MadGraph/MadEvent. Based on that, we studied the Kaluza-Klein graviton production in the large extra dimensions model via 2 jets plus missing transverse momentum signatures at the LHC, where we make predictions for both the signal and the dominant  $Zjj$  and  $Wjj$  backgrounds, the distributions of the two jets and their correlation with the missing transverse momentum provide additional evidence for the production of an invisible massive object. A brief introduction on the NLO QCD corrections to graviton monojet productions will also be included.