Kays Haddad

Kays Haddad

April 1, 2019

Durham University

SAGEX

Scattering Amplitudes:
from Geometry to Experiment

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Sklodowska-Curie grant agreement No. 764850

Ottawa, Canada

McGill University

M.Sc.

- Phenomenological particle physics with the ATLAS collaboration at McGill
- Thesis title: Sensitivity study of a search for a charged scalar particle in proton-proton collisions at a center of mass energy of 14 TeV

M.Sc.

- Goal: To quantify the sensitivity of LHC experiments to the process $H^{+/-} \rightarrow W^{+/-}\gamma$ for a generic charged scalar $H^{+/-}$
- Added an effective coupling to the SM including a generic charged scalar, and the decay channel of interest
- Developed an analysis to search for this process
- Results
  - Limits that can be set on this decay channel with the developed method are competitive with existing limits on other channels
  - A charged scalar consistent with the singly charged Higgs in the quintuplet of the GM model would not be observable

Niels Bohr Institute

PhD

- Current research: Developing EFTs to calculate classical gravitational scattering of scalars and fermions
  - Motivated by the present interest in calculation of corrections to the two-body gravitational potential (more accurate predictions of gravitational wave waveform in black hole inspiral phase)
- Other research interests:
  - EFTs
  - BCJ relations/Gravity as a double copy of gauge theories
  - Formal aspects of scattering amplitudes

Looking forward to working with all of you!