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Project Title: Applications of amplitude results in effective field theory



SAGEX

Scattering Amplitudes:
from Geometry to Experiment



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Background and Research Project

Background: BSc (2016) and MSc (2018) in physics from McGill University, Canada. MSc research was on effective field theories and their application to particle physics phenomenology.

Research Project: Recently, surge of interest in **classical gravitational physics**. We've developed an **effective field theory** to ease extraction of classical parts of scattering amplitudes (preprint is out, paper accepted to JHEP). Currently working on applying **modern amplitudes techniques** to this EFT, to make it easier to work with and to apply it to higher spin particles.

Interactions

- Positive interactions with ESRs. Easy communication via WhatsApp SAGEX group. Plenty of interaction at conferences/schools.
- I've been in contact with my mentor via e-mail, looking forward to speaking in person.
- Jenna is a great point of contact for all SAGEX related questions. Quick to respond to e-mails, and very approachable and knowledgeable about the network.

Training Received

- Two **courses** so far at UCPH: General Relativity and Modern Methods for Particle Scattering
- One **teaching assistantship** so far at UCPH (two more planned)
- Nordic winter school in particle physics and cosmology 2019
- SAGEX progression seminar, August 2019
- First SAGEX school and workshop

Secondment and Outreach

Secondment: Will be at RISC GmbH, from August 17 to November 13, 2020. Work will be in the field of biotechnology, related to machine learning.

Outreach: Helping plan the **SAGEX travelling exhibition**. Part of the **monthly videos**. Managed the **twitter account** with fellow ESR at NBI throughout September and October. Presented a general theoretical physics poster at **Copenhagen Culture Night** on Oct. 11, 2019.

Future Plans

- Primarily interested in continuing in academia. Therefore, I intend to pursue a postdoctoral position after my PhD.
- From SAGEX I hope to develop a strong network in the amplitudes community, as well as improve physics and soft skills via the planned schools and workshops.
- I'm open to a career outside of academia, so also looking forward to the internship to get some experience in industry.