

# Perturbative amplitude computations and integrability

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**SAGEX**

Scattering Amplitudes:  
from Geometry to Experiment



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- Bachelor degree in Physics at the University of Padova (Italy)
- Master degree in Physics at the University of Padova with focus on particle physics and master thesis developed in Göttingen (Germany) under the supervision of K.H.Rehren and P.Marchetti about "The infinite-spin representation of the Poincaré group"
- PhD in scattering amplitudes at Trinity College Dublin (Ireland) under the supervision of R. Britto [In progress...!]

- The study of asymptotic properties of Yang-Mills theory gives new insights on soft singularities of scattering amplitudes and their structure. We have revisited the coherent state construction in QCD which provides the cancellation of the S-matrix infrared divergences and we have found a new Ward identity at loop level ([arXiv:1906.11763] with T.McLoughlin, D.Medrano and A.Spiering)
- Much more to come: collinear limits, subleading soft behaviour, current algebras, ...

- It has been a pleasure to be a part of the ESRs group and I already had many stimulating interactions with all the other members, both regarding physics/mathematics, outreach activities and work-unrelated topics. Nice collaborations with A. Spiering and A.Cristofoli!
- I am also very grateful of many enlightening discussions with R.Britto, T.McLoughlin, J.Plefka, V.Schomerus, J.J. Carrasco and many others.

Looking forward to expand my network!

## Workshops and schools attended:

- ESR Welcome meeting, Durham (April 1-2, 2019)
- First Hamilton School on Mathematical Physics, Dublin (May 20-22, 2019)
- Amplitudes conference, Dublin (July 1-5, 2019)
- DESY Summer School in "Gauge and String Theory", Hamburg (July 22-26, 2019)
- 1st SAGEX Scientific Workshop, DESY Hamburg (July 29-August 2, 2019)
- DESY Theory workshop "Quantum field theory meets gravity", Hamburg (September 24-27, 2019)

Secondment at Wolfram company in Champaign: March 16-June 15, 2020  
(together with S.De Angelis and M.Accettulli Huber)

I've been involved in various outreach activities:

- Twitter (with A.Spiering)
- Group exhibition: "Feynman diagrams team" (with all ESRs)
- Local journal clubs

Many interesting things still to do and new structures to uncover in scattering amplitudes calculations looking at their symmetries. I hope that the secondment and all the forthcoming training activities will help in my career. Last but not least, I am looking forward to learn more and to start new collaborations!