

# Claudia Rella

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## EDUCATION

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### Doctor of Philosophy in Mathematical Physics

2020, Oct – present

*Department of Theoretical Physics, University of Geneva, Switzerland*

Thesis: Supervised by Prof Marcos Marino.

Affiliations: ERC Synergy Grant ReNewQuantum – National Centre of Competence in Research SwissMAP.

### Master of Science in Mathematical and Theoretical Physics – Distinction

2018, Oct – 2019, Jun

*Mathematical Institute and Department of Physics, University of Oxford, UK*

Thesis: *Motivic Amplitudes*. Supervised by Prof Francis Brown.

Affiliations: St John's College.

### Bachelor of Science in Physics <sup>(\*)</sup> – Summa cum Laude

2015, Oct – 2018, Jun

*Department of Physics, University of Rome La Sapienza, Italy*

Thesis: *Photonic Bloch Waves*. Supervised by Prof Fabio Sciarrino.

<sup>(\*)</sup>: Extra-curricular coursework in Mathematics at Department of Mathematics.

## RESEARCH EXPERIENCE AND INTERNSHIPS

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### Particle Physics Research Internship in Modelling and Programming

2020, Jul – Sep

*NA62 @ CERN, Geneva, Switzerland*

### Master Class in Mathematical Physics

2019, Oct – 2020, Jun

*University of Geneva and NCCR SwissMAP, Geneva, Switzerland*

### Business Consulting Internship in Big Data and AI

2019, Jul – Aug

*Pangea Formazione, Rome, Italy*

### Particle Physics Research Internship in Simulation and Data Analysis

2017, Sep – Nov

*PADME @ INFN – LNF, Frascati, Italy*

## OTHER ACTIVITIES

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### Junior Member of the Scientific Council of the SRS Conference Centre

2020, Sep – present

*SwissMAP Research Station (SRS), Les Diablerets, Switzerland*

### Invited Contributor to the Theory Frontier of the 2021 Snowmass Process

2020, Aug – present

*Division of Particles and Fields of the American Physical Society, United States*

### Mentee at LeadTheFuture Mentorship Program

2019, Sep – present

*LeadTheFuture, Italy*

## PUBLICATIONS

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### An Introduction to Motivic Feynman Integrals

2021, Mar

*SIGMA* 17 (2021), 032, 56 pages, <https://doi.org/10.3842/SIGMA.2021.032>

### Characterization and Performance of PADME's Cherenkov-Based Small-Angle Calorimeter

2019, Mar

*With A. Frankenthal et al., Nucl. Instrum. Methods Phys. Res. A* 919 (2019) 89-97,

<https://doi.org/10.1016/j.nima.2018.12.035>

## TALKS

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### Introduction to Motivic Amplitudes

2019, Nov

*Research Seminar on Lie Groups and Moduli Spaces, University of Geneva, Switzerland*

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|---|-----------|
| <b>Motivic Scattering Amplitudes</b><br><i>Conference on Representation Theory and Integrable Systems, ETH, Zürich, Switzerland</i> | 2019, Aug |
| <b>Monte Carlo Simulation of PADME's Small-Angle Calorimeter</b><br><i>PADME Weekly Meeting, INFN – LNF, Frascati, Italy</i>        | 2017, Dec |

## TEACHING EXPERIENCE

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|---|-----------------|
| <b>Lecturer on Topological Surfaces</b><br><i>Master Class in Mathematical Physics – Department of Mathematics, University of Geneva, Switzerland</i> | 2019, Oct       |
| <b>Lecturer on Riemannian Geometry</b><br><i>Excellence Program in Physics – Department of Mathematics, University of Rome La Sapienza, Italy</i>     | 2018, Mar – May |

## ACADEMIC ACHIEVEMENTS AND SCHOLARSHIPS

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|---|-------------|
| <b>Excellence Fellowship</b><br><i>NCCR SwissMAP, Switzerland</i>   | 2019        |
| <b>Degree Prize for Distinction</b><br><i>St John's College, University of Oxford, UK</i>   | 2019        |
| <b>Torno Subito Scholarship</b><br><i>Department of Education, Research and University, Lazio, Italy</i>                            | 2018        |
| <b>Best Student Award for the Course in Nuclear and Subnuclear Physics</b><br><i>University of Rome La Sapienza and INFN, Italy</i> | 2018        |
| <b>Summer Student Scholarship</b><br><i>INFN, Italy</i>   | 2017        |
| <b>Excellence Program</b><br><i>Department of Physics, University of Rome La Sapienza, Italy</i>                                    | 2016 – 2018 |
| <b>Deserving Student Scholarship</b><br><i>University of Rome La Sapienza, Italy</i>  | 2015 – 2018 |

## SKILLS

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|-----------------------------|---------------------------|
| Languages                   | Italian (native), English |
| Programming Languages       | C, C++, Python, R, Perl   |
| Data Analysis Languages     | MATLAB, ROOT, gnuplot     |
| Symbolic Calculus Languages | Mathematica               |
| Version-control Systems     | Git                       |
| Simulation Software         | Geant4                    |