Claudia Rella

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Department of Theoretical Physics, University of Geneva
Quai Ernest Ansermet 24, 1205 Geneva, Switzerland

EDUCATION

Doctor of Philosophy in Mathematical Physics — 2020 – present
Department of Theoretical Physics, University of Geneva, Switzerland
Thesis: Supervised by Prof Marcos Mariño.
Affiliations: ERC SyG ReNewQuantum – NCCR SwissMAP.

Master of Science in Mathematical and Theoretical Physics – Distinction — 2018 – 2019
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 (*) – Summa cum Laude — 2015 – 2018
Department of Physics, Sapienza University of Rome, Italy
Thesis: *Photonic Bloch Waves*. Supervised by Prof Fabio Sciarrino.
(*): Extra-curricular coursework in Mathematics at the Department of Mathematics.

RESEARCH EXPERIENCE AND INTERNSHIPS

Research Internship in High Energy Physics Phenomenology — 2020, Jul – Sep
CERN, Geneva, Switzerland

Master Class in Mathematical Physics — 2019, Sep – 2020, Jun
University of Geneva and NCCR SwissMAP, Geneva, Switzerland

Business Consulting Internship — 2019, Jul – Aug
Pangea Formazione, Rome, Italy

Research Internship in Experimental Particle Physics — 2017, Sep – Nov
PADME @ INFN – LNF, Frascati, Italy

OTHER ACTIVITIES

Cooperation Associate of the Department of Theoretical Physics — 2022, May – present
CERN, Switzerland

Junior Member of the Scientific Council of the SRS Conference Centre — 2020, Sep – present
SwissMAP Research Station (SRS), Switzerland

Mentee at LeadTheFuture Mentorship Program — 2019, Sep – present
LeadTheFuture, Italy

PUBLICATIONS

(*) Strong-weak duality and quantum modularity of resurgent topological strings on local $\mathbb{P}^2$ — 2024, Mar
With V. Fantini, to appear

On the structure of wave functions in complex Chern–Simons theory — 2023, Dec
With M. Mariño, arXiv:2312.00624
https://doi.org/10.48550/arXiv.2312.00624

Resurgence, Stokes constants, and arithmetic functions in topological string theory — 2023, Nov
Commun. Number Theory Phys. 17 (2023), No. 3, pp. 709-820
https://dx.doi.org/10.4310/CNTP.2023.v17.n3.a4

Searching for muonphilic dark sectors with proton beams 2022, Aug
With B. Döbrich and T.-T. Yu, Phys. Rev. D 106 (2022) 3, 035023
https://doi.org/10.1103/PhysRevD.106.035023

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 AND SEMINARS

(*) On the structure of wave functions in complex Chern–Simons theory 2024, Apr
String Theory Seminar, CERN, Switzerland

Strong-weak duality and quantum modularity of resurgent topological strings 2024, Mar
Seminar on Quantum Modularity and Resurgence, IHES, France

Resurgence and Calabi–Yau geometries 2024, Feb
Workshop on Positive Geometry in Particle Physics and Cosmology, MPI MiS, Germany

Strong-weak duality and quantum modularity of resurgent topological strings 2023, Dec
Geometry and Physics Seminar, University of Sheffield, UK

Strong-weak duality and quantum modularity of resurgent topological strings 2023, Nov
QM Research Seminar, Centre for Quantum Mathematics, SDU, Denmark

Resurgence, Stokes constants, and arithmetic functions in topological string theory 2023, Jul
29th Nordic Congress of Mathematicians with EMS, Aalborg, Denmark

Resurgence, Stokes constants, and arithmetic functions in topological string theory 2023, Apr
Mathematics Seminar, IHES, France

Resurgence, Stokes constants, and arithmetic functions in topological string theory 2023, Mar
Physical Mathematics Seminar, University of Geneva, Switzerland

Stokes constants in topological string theory 2022, Nov
Workshop on Mathematics of Beyond All-Orders Phenomena, University of Cambridge, UK

An introduction to motivic amplitudes 2019, Nov
Seminar on Lie Groups and Moduli Spaces, University of Geneva, Switzerland

Motivic scattering amplitudes 2019, Aug
Conference on Representation Theory and Integrable Systems, ETH Zürich, Switzerland

Monte Carlo simulation of PADME's small-angle calorimeter 2017, Dec
PADME Weekly Seminar, INFN – LNF, Italy

TEACHING EXPERIENCE

Teaching Assistant on Feynman Integrals and Number Theory 2024, Jan
Winter School in Mathematical Physics – SwissMAP Research Station, Les Diablerets, Switzerland

Lecturer on Topological Surfaces 2019, Oct
Master Class in Mathematical Physics – Department of Mathematics, University of Geneva, Switzerland

Lecturer on Riemannian Geometry 2018, Mar – May
Excellence Program in Physics – Department of Mathematics, Sapienza University of Rome, Italy

ACADEMIC ACHIEVEMENTS AND SCHOLARSHIPS

Excellence Fellowship — 2019 – 2020
NCCR SwissMAP, Switzerland

Degree Prize for Distinction — 2019
St John's College, University of Oxford, UK

Torno Subito Scholarship — 2018 – 2019
Department of Education, Research, and University, Lazio, Italy

Best Student Award for the Course in Nuclear and Subnuclear Physics — 2018
Sapienza University of Rome and INFN, Italy

Summer Student Scholarship — 2017
INFN, Italy

Excellence Program — 2016 – 2018
Department of Physics, Sapienza University of Rome, Italy

Deserving Student Scholarship — 2015 – 2018
Sapienza University of Rome, Italy

SKILLS

Languages	Italian (native), English
Programming Languages	C, C++, Python, R
Data Analysis Languages	MATLAB, ROOT, Gnuplot
Symbolic Calculus Languages	Mathematica, SageMath, PARI/GP
Version-control Systems	Git
Simulation Software	Geant4

(*) : forthcoming