

Federico Zerbini

Personal Information

Birth July 9th, 1989 in Milan, Italy
Nationality Italian

Employment

from 11/2017 **Hadamard Postdoctoral Fellow in “Mathematics and Physics”**, *Institut de Physique Théorique (IPhT) in CEA-Saclay (Paris, France)*, co-financed by People Programme (Marie Curie Actions) of the European Union’s Seventh Framework Programme (FP7/2007-2013) under REA grant agreement n.PCOFUND-GA-2013-609102, through the PRESTIGE programme coordinated by Campus France.

Education

- 10/2017 **Ph.D. in mathematics**, *Max Planck Institute for Mathematics and Bonn University (Bonn, Germany)*, with thesis: “Elliptic multiple zeta values, modular graph functions and superstring scattering amplitudes”, supervised by Prof. Dr. Don B. Zagier.
- 07/2013 **M.Sc. in mathematics**, *within the Erasmus Mundus double-degree master program ALGANT (ALgebra, Geometry And Number Theory), at Université Bordeaux 1 (Bordeaux, France) and Università degli studi di Milano (Milan, Italy)*, with thesis: “The dominant root assumption in problems with linear recurrences”, supervised by Prof. Dr. Yuri Bilu.
- 07/2011 **B.Sc. in mathematics**, *Università degli Studi di Milano (Milan, Italy)*, with thesis: “On the irrationality of the function zeta at the odd integers”, supervised by Prof. Dr. Giuseppe Molteni.

Fields of research

Periods in number theory, physics and algebraic geometry, **modular forms**, classical and elliptic **polylogarithms**, mathematical aspects of **string theory**.

Publications

Preprints

- 03/2018 **From elliptic multiple zeta values to modular graph functions: open and closed strings at one loop**, *joint with J. Brödel and O. Schlotterer*, arXiv:1803.00527 [hep-th].

Published

- 12/2015 **Single-valued multiple zeta values in genus 1 superstring amplitudes**, *Commun. Number Theory Phys. Vol. 10 Nr. 4 (2016) 703-737*, arXiv:1512.05689 [hep-th].
- 09/2015 **Appendix to “Strangely dual orbifold equivalence I”**, *joint with A. Ros Camacho*, *Journal of Singularities Vol. 14 (2016) 46-51*, arXiv:1509.08069 [math.QA].

Grants and awards

- 11/2017-10/2019 **“Prestige” co-financing grant**, *for the project “The mathematical structure of Feynman amplitudes in string theory”*, People Programme (Marie Curie Actions) of the European Union’s Seventh Framework Programme (FP7/2007-2013) under REA grant agreement n.PCOFUND-GA-2013-609102.
- 03/2014 **Master Thesis prize**, *INdAM (Istituto Nazionale di Alta Matematica - National Institute for Advanced Mathematics)*.

03/2012 **INdAM master students scholarship**, awarded to the top 7 Italian first-year master students in mathematics.

09/2008 **INdAM bachelor students scholarship**, awarded to the top 40 Italian freshmen in mathematics.

Organization of scientific events

From **Co-organizer of the seminar “Motives and Feynman integrals”**, École Polytechnique (Paris, 11/2017 France).

09/2015 **Co-organizer of the school “Introductory school to moduli spaces”**, Max Planck Institute for Mathematics (Bonn, Germany).

Talks

Conferences and workshops

03/2018 **Elliptic multiple zeta values and string amplitudes**, Workshop “Amplitudes and periods”, Hausdorff Research Institute for Mathematics (Bonn, Germany).

10/2017 **Genus one superstring amplitudes and modular forms**, Conference “Elliptic Integrals, Elliptic Functions and Modular Forms in Quantum Field Theory”, DESY Zeuthen (Berlin, Germany).

02/2017 **Superstring amplitudes in genus 1**, Conference “KMPB-day 2017”, Humboldt University (Berlin, Germany).

Seminars

05/2018 **Genus one polylogarithms and Eichler integrals**, Algebraic geometry seminar, Montpellier University (Montpellier, France).

04/2018 **Eichler integrals of modular forms in physics**, MathPhys Seminar, Utrecht University (Utrecht, Netherlands).

03/2018 **String amplitudes in genus one: from open to closed strings**, Mathematical physics seminar, IPhT CEA-Saclay (Paris, France).

03/2018 **From open to closed string amplitudes in genus one**, Mainz University (Mainz, Germany).

03/2018 **Elliptic multiple zeta values and iterated Eichler integrals**, Number theory seminar, Paris-Jussieu University (Paris, France).

12/2017 **Elliptic multiple zeta values and string theory**, Seminar “Motifs et intégrales de Feynman”, École polytechnique (Paris, France).

02/2017 **Superstring amplitudes and multiple zeta values**, Seminar on Algebra, Geometry and Physics, MPIM (Bonn, Germany).

11/2016 **The number theory of superstring amplitudes**, ICTP (Trieste, Italy).

11/2016 **The number theory of superstring scattering amplitudes**, Relativity seminar, Oxford University (Oxford, UK).

11/2016 **Classical and elliptic multiple zeta values in Feynman integrals**, Oberseminar, MPIM (Bonn, Germany).

09/2016 **Polylogarithms and superstring Feynman integrals**, Milan University (Milan, Italy).

05/2016 **Single-valued multiple zeta values in superstring amplitudes**, Mathematical physics seminar, ETH (Zurich, Switzerland).

11/2013 **The dominant root assumption in problems with linear recurrences**, Oberseminar, MPIM (Bonn, Germany).

07/2013 **Linear recurrences and the Subspace Theorem**, ALGANT seminar, Milan University (Milan, Italy).

Scientific visits

02/2018- **Hausdorff Research Institute for Mathematics (HIM, Bonn, Germany)**, Hausdorff

03/2018 *Trimester Program “Periods in Number Theory, Algebraic Geometry and Physics”*.

10/2015 **Max Planck Institute for Gravitational Physics (AEI, Potsdam, Germany)**.

09/2015 **Institute des Hautes Etudes Scientifiques (IHES, Bures sur Yvette, France).**

Teaching experience

09/2015- **Modular forms**, *Mini-course at the MPIM (Bonn, Germany).*
10/2015

Professional service

Referee for: Journal of High Energy Physics

Languages

Native Italian

Fluent English, French, Spanish

Intermediate German