Yang Zhang

CONTACT INFORMATION	Peng Huanwu Center for Fundamental Theory & Interdisciplinary Center for Theoretical Study E-mail: yzhphy@ustc.edu.cn University of Science and Technology of China 96 Jinzhai Road, Hefei, Anhui, China

RESEARCH INTERESTS

Scattering Amplitudes, Perturbative Quantum Chromodynamics, Integrable Models, Computational Algebraic Geometry for Physics

ACADEMIC POSITIONS

Professor, University of Science and Technology of China, May. 2019 –

Junior group leader (E15), Max Planck Institute for Physics Munich, Oct. 2018 – Apr. 2019

Junior group leader (E15), JGU Mainz, Nov. 2017 – Sep. 2018

Swiss National Science Foundation, Ambizione Fellow, ETH Zürich, Sep. 2015 – Aug. 2018

Postdoctoral Researcher, ETH Zürich, Sep. 2014 – Aug. 2015

Postdoctoral Researcher, Niels Bohr Institute, Sep. 2011 – Aug. 2014

EDUCATION

Cornell University, Ithaca, NY, USA

Doctor of Philosophy   **Aug. 2011**

  Advisor: Henry Tye
  Dissertation: "Recursive relations of scattering amplitudes in gauge and gravity theories",

GRANTS RECEIVED

National Natural Science Foundation of China, 12075234, 600k RMB, 2021-2024

Swiss National Science Foundation, **Ambizione Grant**, PZ00P2_161341, 377,520 CHF ($\sim$ 380k USD), 2015–2018

Danish Council for Independent Research, **Natural Science FNU Grant**, 11-107241, 1,581,355 DKK ($\sim$ 220k USD), 2011–2013

HONORS AND AWARDS

Collaborative Research Center SFB Fellowship, Hamburg University, 2017

Physical Review D Highlighted Article, 2016

Walter Schonlenk Fellowship, Cornell University, 2005 – 2006

First Class Award, University of Science and Technology of China, 2003 and 2004

CONFERENCE ORGANIZED

Effective Field Theories and Scattering Amplitudes, University of Science and Technology of China, Sep 7-8, 2019.

Organizers: Jian-Xin Lu, Shuang-Yong Zhou and Yang Zhang

The Mathematics of Linear Relations between Feynman Integrals, Mainz Institute for Theoretical Physics, Johannes Gutenberg University, March 18-22, 2019.

Organizers: Christian Bogner, Erik Panzer and Yang Zhang

STUDENTS SUPERVISED

Jorrit Bosma, master thesis "Amplitudes from the Cachazo-He-Yuan Scattering Equations: An Algebro-Geometric Approach", Sep. 2016, ETH Zürich

Alessandro Georgoudis, master thesis "Integral Reduction from Algebraic Curves", Sep. 2015, ETH Zürich

- **University of Science and Technology of China**, Hefei, China

  Undergraduate Course,

  lecturer, Quantum Mechanics A, (Fall 2020)

  Graduate Course,

  lecturer, Selected topics in quantum field theory, (Fall 2019)

- **ETH Zürich**, Zürich, Switzerland

  Block Course,

  lecturer, Scattering Amplitudes and Applied Algebraic Geometry, 6 Lectures, (Spring 2016)

  Proseminar:

  tutor, Exact Method in Quantum Field Theory, (Spring 2016)
  tutor, Gauge Theory and Integrable Spin Chains, (Spring 2015)

- **Cornell University**, Ithaca, New York, USA

  Graduate courses:

  Grader, Physics 652, Quantum field theory II, (Spring 2008)
  Teaching Assistant, Physics 6562: Statistical mechanics, (Spring 2009)
  Teaching Assistant, Physics 572: Quantum mechanics, (Fall 2006)

  Undergraduate courses:

  Teaching Assistant, Physics 101, General Physics I, (Fall 2010)
  Teaching Assistant, Physics 112, Mechanics, (Fall 2008)
  Teaching Assistant, Physics 102, General Physics II, (Spring 2007)

LoopFest 2018, Munich State University, Lansing, MI, USA (Jul. 2018) "Integration-by-parts reduction via algebraic geometry method"

LoopFest 2017, Argonne National Lab, Lemont, IL, USA (Jun. 2017) "AZURITE: a package to determine master integrals via computational algebraic geometry"

Amplitudes 2016, Nordita, Stockholm, Sweden, (Jul. 2016)
"Integration-by-parts reduction from unitarity, an algebraic geometry story"

Loopfest XIV, UCLA, Los Angeles, CA, USA, (Jun. 2015)
"Integral reduction via algebraic curves"

IAS Focused Program on Scattering Amplitudes in Hong Kong, Hong Kong, (Nov. 2014)
"Elliptic Functions and Maximal Unitarity"

Loopfest XIII, City College of Technology, New York, NY, USA, (Jun. 2014)
"Multi-loop Unitarity via Computational Algebraic Geometry"

Amplitudes 2014, a Claude Itzykson memorial conference, IPhT, Saclay, France, (Jun. 2014)
"Integration-by-parts Identities from the Viewpoint of Differential Geometry"

The Geometry and Physics of Scattering Amplitudes, Simons Center for geometry and physics, Stony Brook, NY, USA (Dec. 2013)
"Multi-loop Unitarity via Computational Algebraic Geometry"

Conference on Applied Algebraic Geometry 2013, Society for Industrial and Applied Mathematics, Fort Collins, CO, USA (Aug. 2013),
"Integrand Reduction of High-loop Scattering Amplitudes via Computational Algebraic Geometry"

Special Lectures, Nanjing Normal University (Oct. 2019), "Analytic computation of Multiloop Feynman integrals", 4 Lectures

School and Workshop on Amplitudes in Beijing 2016, Institute of theoretical physics and KITPC, Beijing, China (Oct. 2016), "Integral Reduction and Applied Algebraic Geometry Techniques", 4+2 Lectures

I wrote the following packages for scattering amplitude computation, and applied algebraic geometry.

Azurite, A Singular/Mathematica package for determining master integrals (with Alessandro Georgoudis and Kasper Larsen)

`https://bitbucket.org/yzhphy/master_integral`

SymBuild, A Singular/Mathematica package for determining integrable symbols (with Vladimir Mitev)

`https://github.com/vladimirmitev/SymbolBuilding-development/`

BasisDet, A Mathematica package for automatic loop integrand reduction

`https://bitbucket.org/yzhphy/basisdet`