CV of Erik Panzer

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Research interests: Feynman integrals, large orders in perturbation theory, multiple (elliptic) polylogarithms and zeta values, graph complexes, deformation quantization

Studies and employment

since 10/2020	Royal Society University Research Fellow at the Maths Institute, Oxford
10/2015–09/2020	Post-Doctoral Research Fellow at All Souls College, Oxford
07/2014–09/2015	PostDoc at Institut des Hautes Études Scientifiques, Bures-sur-Yvette
03/2015	Dr. rer. nat. in mathematics from HU Berlin, grade *summa cum laude*, PhD thesis "Feynman integrals and hyperlogarithms"
07/2011	Master thesis "Hopf-algebraic renormalization of Kreimer's toy model"
10/2010–06/2014	graduate studies at HU Berlin, supervisor: Prof. Dr. Dirk Kreimer
10/2009–09/2010	MASt (Part III maths) at University of Cambridge, grade: Distinction
10/2006–09/2009	studied maths and physics at BTU Cottbus and FU Berlin

Supervision and teaching experience

PostDocs	Marko Berghoff (10/2020–03/2022), Federico Zerbini (09/2022–11/2023), Felix Tellander (05/2024–), Paul-Hermann Balduf (08/2024–), all employed and mentored at Oxford on my research grant (Royal Society)
PhD students	Simone Hu (2021–), Jean-Luc Portner (2023–)
Master theses	Jean-Luc Portner (10/2022–02/2023, visiting student from ETH Zurich), *Computing the single-valued Knizhnik-Zamolodchikov associator*
Dissertations	supervised and marked 4 undergraduate extended essays: 3 on *deformation quantization* and 1 on *modular graph functions* (10/2020–05/2021)
REUs	I organized and ran by myself several 7-week summer research projects for undergraduate students: *Graph Invariants from the Tropics* (2021) with Tal Barnea, Yiyang Chen, Oliver Hayman, Eric Jiang, Jacob Mercer, and Ben Plimley; *Formality weights* (2022) with Radu-Alexandru Iacob and Zihong Lin; *Feynman graph invariants* (2024) with Shuborno Das, Isabella Fosberry, Kledion Shahini, and Sichao Xiong
Lecturing	*B7.2 Electromagnetism* of the Oxford undergraduate syllabus in 2023 and again in 2024; this entailed: 16 hours of lectures, setting 4 exercise sheets and the exam, all with solutions, grading the exam, and reporting
Tutorials	Teaching assistant (running exercise classes) for *Differentiable Manifolds* (Oxford MT 2020), *Introduction to Quantum Field Theory I* (HU Berlin WS 2011/12), *Linear Algebra* (BTU Cottbus SS 2008), *Discrete Mathematics* (BTU Cottbus WS 2007/08)

Academic service and governance

Editorial	special issue *Algebraic Structures in Perturbative Quantum Field Theory*
Peer Review	38 reviews for journals including: AIHPD, AMS Contemp. Math., APP, CJM, CMP, CNTP, CPC, E-JC, Front. Phys., IRMA Lect., J. Algebra, JCA, JHEP, JMP, JNCG, JNT, J. Phys. A, KJM, Nagoya Math. J., Nucl. Phys. B, Open Math., SIGMA
ECRs	For many years I served on the *Early Career Researchers Committee* at the Maths Institute Oxford. I organized informal coffee mornings and dinners for new PostDocs. During the pandemic, I implemented a mock-up of the institute common coom virtually in GatherTown, which was used to host (online) social department events during the lockdowns. Since 2021 I also run a *mailing list* and compile and distribute a *weekly summary of seminars* at the maths and physics institutes in Oxford.
Examining	*PhD*: Joseph McGovern (2023). *Transfer/Confirmation* (PhD student exams after 1 and 3 years): Giuseppe Bogna (2022), Deepak Kamlesh (2021/2023), Adam Keilthy (2019), Matija Tapušković (2018/2021). *Prize Fellowship* at All Souls College in 2018 and 2023: setting general paper questions, marking papers, conducting interviews, reporting.
Leadership	completed *Leadership Effectiveness* training (3 day in person, by the Royal Society and Imperial College Business School) and several short courses offered at Oxford, including: *Mentoring Inexperienced Researchers*, *DPhil supervision at Oxford*, *Mental Health Awareness for Managers*, *Being an effective bystander*, *Creating an inclusive research culture*, *Essentials of People Management in Research*
Hiring	Between 2019 and 2025, I served on 5 hiring panels/recruitment committees at All Souls College: for a *Domestic Bursar*, one *Senior Research Fellow*, and three *Post-Doctoral Research Fellows* in mathematics.
Governance	At All Souls College, I was a member of the *Computing Sub Committee* (2017–2020), in particular overseeing the transition from an external contractor to in-house supply of IT systems and administration; the *Climate Change working group* (2019); and the *Visiting Fellows Committee* (2018–2020), which selects the visiting fellows and runs the programme.

(Co-)Organization of scientific events

05–09/09/2022	Tropical and Convex Geometry and Feynman integrals, ETH-ITS Zurich
27–28/06/2022	Special Values of L-functions, Periods, and Fundamental Groups, Oxford
16/11–20/11/2020	Algebraic Structures in Perturbative Quantum Field Theory, IHES Paris
22–23/07/2019	Arithmetic and Geometric Aspects of Modular Forms, Oxford
18–22/03/2019	The Mathematics of Linear Relations between Feynman Integrals, MITP Mainz
11/02–12/04/2019	Modular forms, periods and scattering amplitudes, ITS/ETH Zürich
19/12/2017	KMPB-Day, Adlershof Berlin

Prizes and awards

2020	Hermann Weyl Prize (Laudatio) of the International Colloquium on Group Theoretical Methods in Physics
07/2010	College Prize (Peterhouse, Cambridge) „Retrospective Title of Scholar“
10/2009–08/2010	Foreign exchange scholarship from the Studienstiftung[1]
07/2008	Participation in the 58th Lindau Nobel Laureate meeting
2006 and 2007	Student prize of the German Physical Society (DPG)
2006	18th IOI[2] (Mexico): bronze medal, 37th IPhO (Singapore): gold medal
2005	Admission to the Studienstiftung
	17th IOI (Poland): bronze medal, 36th IPhO (Spain): bronze medal
	BOI[3] (Lithuania): gold medal, 12nd CEOI (Hungary): bronze medal
2004	11st CEOI (Poland): silver medal, 16th IOI (Greece): bronze medal

Scientific publications

Preprints

1. Graph theoretic properties of Speyer's matroid polynomial $g_M(t)$
   June 2025. [arXiv:2506.18788]

2. Logarithmic morphisms, tangential basepoints, and little disks (with C. Dupont and B. Pym)
   August 2024. [arXiv:2408.13108]

3. Unstable cohomology of $\mathsf{GL}_{2n}(\mathbb{Z})$ and the odd commutative graph complex (with F. Brown and S. Hu)
   June 2024. [arXiv:2406.12734]

4. Regularized integrals and manifolds with log corners (with C. Dupont and B. Pym)
   December 2023. [arXiv:2312.17720]

5. Five-loop massless propagator integrals (w. A. Georgoudis, V. Gonçalves and R. Pereira)
   February 2018. [arXiv:1802.00803]

Journal articles

6. Hierarchies in relative Picard-Lefschetz theory (with M. Berghoff)
   Journal of Geometry and Physics **216** (2025) 105539. [arXiv:2212.06661]

[1] Studienstiftung des Deutschen Volkes (German National Academic Foundation)
[2] IOI = International Olympiad in Informatics, IPhO = International Physics Olympiad
[3] BOI = Baltic Olympiad in Informatics, CEOI = Central European Olympiad in Informatics

Scientific publications (continued)

7. Feynman symmetries of the Martin and c_2 invariants of regular graphs (with K. Yeats)
Combinatorial Theory **5**(1) (2025), #10. [arXiv:2304.05299]

8. Hepp's bound for Feynman graphs and matroids
Ann. Inst. H. Poincaré D **10** (2023), no. 1 pp. 31–119. [arXiv:1908.09820]

9. Two-loop mixed QCD-EW corrections to $q\bar{q} \to Hg$, $qg \to Hq$, and $\bar{q}g \to H\bar{q}$ (with M. Bonetti and L. Tancredi)
JHEP **2022** (Mar., 2022) p. 115. [arXiv:2203.17202]

10. Glue-and-cut at five loops (with A. Georgoudis, V. Gonçalves, R. Pereira, A. V. Smirnov and V. A. Smirnov)
JHEP **2021** (Sept. 2021) 098. [arXiv:2104.08272]

11. Four-loop collinear anomalous dimensions in QCD and $\mathcal{N} = 4$ super Yang-Mills (with B. Agarwal, A. von Manteuffel and R. M. Schabinger)
Physics Letters B **820**, 136503, Sep. 2021. [arXiv:2102.09725]

12. Two-loop mixed QCD-EW corrections to $gg \to Hg$ (with M. Bonetti, V. A. Smirnov and L. Tancredi) *JHEP* **2020** (Nov. 2020) 45. [arXiv:2007.09813]

13. The four-loop cusp anomalous dimension from the $\mathcal{N} = 4$ Sudakov form factor (with T. Huber, A. von Manteuffel, R. M. Schabinger and G. Yang),
Physics Letters B **807**, 135543, August 2020. [arXiv:1912.13459]

14. Multiple zeta values in deformation quantization (with P. Banks and B. Pym)
Inventiones Mathematicae **222** (2020), pp. 79–159. [arXiv:1812.11649]

15. Cusp and collinear anomalous dimensions in four-loop QCD from form factors (with A. von Manteuffel and R. M. Schabinger),
Phys. Rev. Lett. **124**, 162001 – 24 April 2020. [arXiv:2002.04617]

16. Lambert-W solves the noncommutative Φ^4-model (with R. Wulkenhaar),
Commun. Math. Phys. **374** (2020), pp. 1935–1961. [arXiv:1807.02945]

17. Manifestly dual-conformal loop integration (with J. Bourjaily and F. Dulat),
Nuclear Physics B **942** (May 2019), pp. 251–302. [arXiv:1901.02887]

18. Feynman integral relations from parametric annihilators (with T. Bitoun, C. Bogner and R. P. Klausen),
Letters in Mathematical Physics **109**(3) (2019), pp. 497–564. [arXiv:1712.09215]

Scientific publications (continued)

19. Loopedia, a database for loop integrals (with C. Bogner, S. Borowka, T. Hahn, G. Heinrich, S. P. Jones, M. Kerner, A. von Manteuffel, M. Michel and V. Papara)
Computer Physics Communications **225** (2018), pp. 1–9. [arXiv:1709.01266]

20. The Galois coaction on ϕ^4 periods (with O. Schnetz),
Communications in Number Theory and Physics **11** (2017) no. 6, pp. 657–705. [arXiv:1603.04289]

21. Minimally subtracted six loop renormalization of $O(n)$-symmetric ϕ^4 theory and critical exponents (with M. V. Kompaniets), *selected as an Editors' Suggestion*,
Phys. Rev. D **96**, 036016 (2017). [arXiv:1705.06483]

22. Graphical functions in parametric space (with M. Golz and O. Schnetz),
Letters in Mathematical Physics **107**(6) (2017) no. 6, pp. 1177–1192. [arXiv:1509.07296]

23. The parity theorem for multiple polylogarithms,
Journal of Number Theory **172** (March 2017) pp. 93–113. [arXiv:1512.04482]

24. Computation of form factors in massless QCD with finite master integrals (with A. von Manteuffel and R. M. Schabinger),
Physical Review D **93**:125014, June 2016. [arXiv:1510.06758]

25. A quasi-finite basis for multi-loop Feynman integrals (with A. von Manteuffel and R. M. Schabinger),
Journal of High Energy Physics, **2015(2)**:120, February 2015. [arXiv:1411.7392]

26. Algorithms for the symbolic integration of hyperlogarithms with applications to Feynman integrals,
Computer Physics Communications **188**, pp. 148–166, March 2015. [arXiv:1403.3385]

27. On hyperlogarithms and Feynman integrals with divergences and many scales,
Journal of High Energy Physics, **2014(3)**:71, March 2014. [arXiv:1401.4361]

28. On the analytic computation of massless propagators in dimensional regularization,
Nuclear Physics B **874** pp. 567–593, September 2013. [arXiv:1305.2161]

Scientific publications (continued)

Conference proceedings

29. Some open problems on Feynman periods, pp. 29–44 in *Periods in Quantum Field Theory and Arithmetic* (J. I. Burgos Gil, K. Ebrahimi-Fard and H. Gangl, eds.), vol. 314 of *Springer Proceedings in Mathematics & Statistics*, Springer, 2020. (Workshop Research Trimester on Multiple Zeta Values, Multiple Polylogarithms, and Quantum Field Theory, ICMAT, Madrid, Spain, September 15–December 19, 2014)

30. Renormalization group functions of ϕ^4 theory in the MS-scheme to six loops (with M. V. Kompaniets),
in *Loops and Legs in Quantum Field Theory (Leipzig, Germany), 24–29 April 2016*.
Proceedings of Science, PoS(LL2016)038. [arXiv:1606.09210]

31. Renormalisation, Hopf algebras and Mellin transforms,
in *Feynman Amplitudes, Periods and Motives* (L. Álvarez-Cónsul, J. I. Burgos-Gil and K. Ebrahimi-Fard, eds.), vol. 648 of *Contemporary Mathematics*, (Providence, RI), pp. 169–202, Amer. Math. Soc., 2015, proceedings of the conference at ICMAT Madrid (July 2–6, 2012). [arXiv:1407.4943]

32. Feynman integrals via hyperlogarithms,
in *Loops and Legs in Quantum Field Theory (Weimar, Germany), 27 April–2 May 2014*.
Proceedings of Science, PoS(LL2014)049. [arXiv:1407.0074]

33. Renormalization and Mellin transforms (with D. Kreimer)
in *Computer Algebra in Quantum Field Theory* (C. Schneider and J. Blümlein, eds.), vol. XII of *Texts & Monographs in Symbolic Computation*, pp. 195–223, Springer Wien, Sept., 2013. [arXiv:1207.6321]

Other

34. Symbolic integration with hyperlogarithms,
Computeralgebra Rundbrief **56** (Mar., 2015) pp. 6–9.

35. Feynman integrals and hyperlogarithms,
PhD thesis, Humboldt-Universität zu Berlin, 2014. [arXiv:1506.07243]

36. Hopf-algebraic renormalization of Kreimer's toy model,
Master's thesis, Humboldt-Universität zu Berlin, July, 2011. [arXiv:1202.3552]

Scientific activities

Invited seminar talks and research stays[4]

04/12/2024 (S) Theoretical Physics Seminar, King's College London
28/11/2024 (S) Séminaire de Physique Théorique, IHES, Bures-sur-Yvette
12–30/08/2024 (S) Combinatorics, Resurgence and Algebraic Geometry in Quantum Field Theory, MPIM Bonn
10–14/06/2024 (S) The QFT path, Heidelberg
05–10/05/2024 *Research in Residence* "Motives in Deformation Quantization" with Clément Dupont and Brent Pym, CIRM Luminy
21/12/2023 (S) Online seminar on periods and motives, Tsinghua University
30/11/2023 (S) Niels Bohr Institute, Copenhagen
19–21/06/2023 (S) DESY Theory Seminar, Hamburg
10/05/2023 (S) Seminar on motives and period integrals in Quantum field theory and String theory, Oxford
26/04–05/05/2023 McGill University, Montréal
17–21/04/2023 (S) Institute for Advanced Study, Princeton
03–15/04/2023 Perimeter Institute, Waterloo
23–24/03/2023 (S) MATHEXP-PolSys Seminar, Inria Saclay
22/08–02/09/2022 (S) New connections in number theory and physics, INI Cambridge
01–14/05/2022 *Research in Pairs* "Motives in Deformation Quantization" with Clément Dupont and Brent Pym, MFO Oberwolfach
20/12/2021 (S) Humboldt-Universität zu Berlin (online)
01/06/2021 (S) Japan Europe Number Theory Exchange Seminar (online)
07/05/2021 (S) IPPP Seminar, Durham (online)
10/03/2021 (S) Arithmetic Geometry and Quantum Field Theory, Warwick (online)
27/10/2020 (S) Calgary Algebra & Number Theory Seminar (online)
19/10/2020 (S) Matroid Union, Waterloo (online)
12/06/2020 (S) Mathematical Physics Seminar, Lyon (online)
28/05/2020 (S) NIKHEF, Amsterdam (online)
27/04/2020 (S) ETH Zürich (online)
09–12/12/2019 Humboldt-Universität zu Berlin
28/11/2019 (S) Dalitz Seminar in Fundamental Physics, Oxford
01/11/2019 (S) Maths HEP Lunchtime Seminars, Durham
29/10/2019 (S) Relativity Seminar, University of Oxford
17–24/09/2019 Spacetime and quantum mechanics, total positivity and motives, CSMA Harvard
02–06/09/2019 Valeurs zêta multiples en quantification par déformation, IMAG Montpellier
29–30/07/2019 (S) Max-Planck-Institut für Physik, München
18–19/06/2019 (S) Felix Klein Kolloquium, TU Kaiserslautern
04/04/2019 (S) Talks in mathematical physics, ETH Zürich
25/03–12/04/2019 Modular forms, periods and scattering amplitudes, ITS Zürich
11–15/03/2019 Modular forms, periods and scattering amplitudes, ITS Zürich

Scientific activities (continued)

18–21/02/2019 (S) Niels Bohr Institute, Copenhagen
24/01/2019 (S) Mathematical Physics Seminar, The University of York
19/12/2018 (S) QFT and String Theory seminar, Humboldt-Universität zu Berlin
17–21/12/2018 (S) Humboldt-Universität zu Berlin
13/12/2018 (S) Séminaire de Mathématique, IHÉS, Bures-sur-Yvette
(S) Séminaire Darboux, LPTHE, Paris
07/12/2018 (S) Southampton High Energy Physics Seminar
26–30/11/2018 (S) Séminaire AGATA, Institut Montpellierain A. Grothendieck
15/10/2018 (S) String Theory Seminar, University of Oxford
24–30/05/2018 University of Waterloo
18–20/04/2018 (S) Niels Bohr Institute, Copenhagen
26–30/03/2018 University of Edinburgh
26/02–02/03/2018 (S) Amplitudes and Periods, HIM, Bonn
18–22/12/2017 (S) Humboldt-Universität zu Berlin
07/12/2017 (S) String Theory Seminar, DESY, Hamburg
06–30/11/2017 (S) Kyushu University, Fukuoka
26/05/2017 (S) North meets South Colloquium, Oxford
08/03/2017 (S) Edinburgh Mathematical Physics Group, Edinburgh
26–27/01/2017 LPTHE, Paris
01–02/12/2016 (S) DAMTP, Cambridge
29–30/11/2016 (S) University of Liverpool
23–25/11/2016 CERN, Geneva
02–04/10/2016 (S) NIKHEF, Amsterdam
18–19/07/2016 (S) Particle Physics Seminar, ETH Zürich
17/06/2016 (S) University of Warwick
13–15/06/2016 (S) Humboldt-Universität zu Berlin
02–03/05/2016 (S) Albert-Ludwigs-Universität, Freiburg
07/04/2016 (S) 5th Itzykson seminar, IHES, Bures-sur-Yvette
14–27/03/2016 (S) Simon Fraser University, Vancouver
29/02–04/03/2016 Max-Planck-Institut für Mathematik, Bonn
15–17/02/2016 (S) School of Mathematics, Trinity College Dublin
01–05/02/2016 (S) Emmy-Noether-Seminar, FAU Erlangen
26/01/2016 (S) University of Oxford
30/11–02/12/2015 (S) Humboldt-Universität zu Berlin
14/09–18/09/2015 Johannes-Gutenberg-Universität (THEP), Mainz
30/04–01/05/2015 (S) Higgs Centre for Theoretical Physics, Edinburgh
21–24/04/2015 (S) Humboldt-Universität zu Berlin
19–20/01/2015 NCSR Demokritos, Athens
09–12/12/2014 (S) Johannes-Gutenberg-Universität (THEP), Mainz
05–09/12/2014 (S) KIT (TTP), Karlsruhe
21/11/2014 (S) Insitute for Theoretical Studies, Zürich
17/11–28/11/2014 ICMAT, Madrid

Scientific activities (continued)

22/09–03/10/2014 (S) ICMAT, Madrid
18–29/08/2014 NIKHEF, Amsterdam
05–07/05/2014 (S) Max-Planck-Institut für Physik, München
17–19/03/2014 (S) ITP, ETH Zürich
08/01/2014 (S) Research seminar "Quantum Fields and Strings" (HU Berlin)
12/12/2013 (S) DESY Theory Seminar Zeuthen
25–29/03/2013 Institut des Hautes Études Scientifiques, Bures-sur-Yvette

Workshops and conferences

09–13/06/2025 (S) Polylogarithms, homology of linear groups, and Steinberg modules, Les Diablerets
24–28/03/2025 (S) The Arithmetic of Calabi-Yau manifolds, MITP Mainz
06/02/2025 Meeting of Minds, Royal Society, London
05–11/11/2024 (S) Multiple Zeta Values and Modular Forms, Kindai University, Osaka
09–13/09/2024 (S) Moduli spaces of curves, moduli spaces of graphs and graph complexes, ITS Zürich
24–26/04/2024 (S) New Frontiers in Landau Analysis, Edinburgh
08/02/2024 Meeting of Minds, Royal Society, London
02–05/10/2023 (S) Tropical Geometry and Infrared Divergences: Heated Discussions on Cool Topics, Institute for Advanced Study, Princeton
07–11/08/2023 Amplitudes conference, CERN, Geneva
10–14/07/2023 (S) SIAM Conference on Applied Algebraic Geometry, Eindhoven
14–16/06/2023 From perturbative to non-perturbative QFT, Münster
19–22/07/2022 (S) Group34 (ICGTMP), Straßbourg
28/03–01/04/2022 Graph Complexes and Quantum Field Theory, HU Berlin (online participation)
15–18/11/2021 (S) Higher Structures Emerging from Renormalisation, ESI Vienna
18–22/10/2021 (S) Elliptics '21, Uppsala
09–13/08/2021 (S) GEOQUANT 2021, Freiburg (online participation)
16/06/2021 (S) StringMath, IMPA (online)
05–09/10/2020 (S) Antidifferentiation and the Calculation of Feynman Amplitudes, Zeuthen (online participation)
18–20/12/2019 Intersection theory and Feynman integrals, Padova
09–13/09/2019 Graph complexes in algebraic geometry and topology, Manchester
22–23/07/2019 Arithmetic and Geometric Aspects of Modular Forms, Oxford
02–04/07/2019 Amplitudes, Dublin
31/05–04/06/2019 (S) Supergravity Divergences and Modular Graph Forms, Uppsala
18-22/03/2019 (S) The Mathematics of Linear Relations between Feynman Integrals, MITP Mainz
29/10–09/11/2018 Amplitudes in the LHC era, Galileo Galilei Institute for Theoretical Phyiscs, Florence

[4]Speaker (S) indicates that I gave a talk.

Scientific activities (continued)

05–08/09/2018 (S) Elliptic integrals in Mathematics and Physics, ETH Zürich, Ascona 
13–17/08/2018 (S) International Workshop on Arithmetic Geometry and Quantum Field Theory, KIAS Seoul 
18–22/06/2018 (S) Amplitudes, SLAC 
25/05/2018 (S) Combinatorial structures in perturbative QFT 2: transforms and graph counting, University of Waterloo 
29/04–04/05/2018 (S) Loops & Legs in Quantum Field Theory, St Goar 
03–26/01/2018 Periods in Number Theory, Algebraic Geometry and Physics, HIM, Bonn 
11–12/11/2017 (S) Polylogs, multiple zetas, and related topics, Tohoku University, Sendai 
04–15/09/2017 (S) Mathematics and Physics of Scattering Amplitudes, MIAPP Munich 
28/08–01/09/2017 (S) Motives for Periods, Berlin 
11–12/07/2017 Amplitudes, Edinburgh 
26–30/06/2017 Algebraic Combinatorics, Resurgence, Moulds and Applications (CARMA), CIRM, Luminy 
07/06/2017 (S) Workshop on multi-loop calculations, Paris 
06–09/06/2017 (S) The elliptic/missing Feynman integrals, ETH Zürich 
10–14/04/2017 (S) Iterated integrals and the Regge limit, Higgs Centre, Edinburgh 
27–31/03/2017 Galois Theory of Periods and Applications, MSRI Berkeley 
06–10/02/2017 Amplitudes: Practical and Theoretical Developments, MITP Mainz 
13–14/07/2016 (S) ICMS 2016, ZIB Berlin 
04–08/07/2016 Amplitudes, NORDITA, Stockholm 
23/06–02/07/2016 Aspects of Amplitudes, NORDITA, Stockholm 
24–25/05/2016 Number Theory and Physics, Institut Henri Poincaré, Paris 
25–29/04/2016 (S) Loops & Legs in Quantum Field Theory, Leipzig 
21/03/2016 (S) CombStructPQFT, SFU Vancouver 
08–12/02/2016 (S) Paths to, from and in renormalization, Potsdam 
20–23/07/2015 (S) Applications of Computer Algebra (ACA), Kalamata 
06–10/07/2015 (S) Amplitudes, Zürich 
22–26/06/2015 International Conference in Number Theory and Physics, IMPA, Rio de Janeiro 
15–19/06/2015 (S) RADCOR/LoopFest, Los Angeles 
01–04/06/2015 (S) CanaDAM, Saskatoon 
02–13/03/2015 The interrelation between mathematical physics, number theory and noncommutative geometry, ESI Vienna 
18/01/2015 (S) HOCTOOLS NNLO meeting, Athens 
01–04/12/2014 Workshop on Multiple Zeta Values, Modular Forms and Elliptic Motives II, Madrid 
15–19/09/2014 (S) Numbers and Physics, Madrid 
27/04–02/05/2014 (S) Loops & Legs in Quantum Field Theory, Weimar 

Scientific activities (continued)

27/03/2014 (S) DPG-Frühjahrstagung, Mainz 

07–09/11/2013 (S) Renormalisation from Quantum Field Theory to Random and Dynamical Systems, Potsdam 

02–06/07/2012 Periods and Motives, A Modern Perspective on Renormalization, Madrid 

25–29/06/2012 Quantum Field Theory, Periods and Polylogarithms III, dedicated to David Broadhurst's 65th birthday, Berlin 

Schools

02–04/08/2023 (S) Amplitudes Summer School, CERN, Geneva 

08–09/06/2023 (S) Workshop and School on Complex Lagrangians, Integrable Systems, and Quantization, Oxford 

19–23/07/2021 (S) The Amplitude Games, MITP Mainz (online) 

17–20/02/2020 (S) 2nd SAGEX training school, HU Berlin 

20–24/05/2019 (S) Masterclass: Elliptic Motives, KTH and University of Stockholm 

11–15/02/2019 (S) Modular forms, periods and scattering amplitudes, ETH Zürich 

04–15/06/2018 (S) Summer school on structures in local quantum field theory, Les Houches 

25–29/05/2015 (S) Applied combinatorics graduate summer school, Saskatoon 

09–20/06/2014 (S) Summer school on structures in local quantum field theory, Les Houches 

01–05/10/2013 (S) Multiple Zeta Values in Mathematics and Physics, KOSMOS Summer University, Berlin 

03–12/07/2013 Polylogarithms as a Bridge between Number Theory and Particle Physics, London Mathematical Society - EPSRC Durham Symposium 

18–22/03/2013 (S) Feynman Graphs and motives, Bingen 

10–14/09/2012 New Methods for Field Theory Amplitudes, Arnold Sommerfeld School, LMU München 

11–16/09/2011 Symmetries, Fundamental Interactions and Cosmology, Frauenchiemsee 

09/2010 (S) Summer academy of the Studienstiftung, San Giovanni 
Project: *The direct method of the calculus of variations*

07 – 09/2009 (S) DESY Summer student programme, Zeuthen 
Research project: *The overlap operator in lattice QCD*

08/2007 (S) Summer academy of the Studienstiftung, Schloß Neubeuern 
Project: *Billiards and Veech-groups of origamis*