

WOJCIECH DYBALSKI

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EDUCATION

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| 10/2018–04/2019 | Habilitation in Mathematics, Technical University of Munich. |
| 11/2004–03/2009 | PhD in Theoretical Physics, University of Göttingen. Advisor: D. Buchholz. |
| 09/2003–10/2004 | Graduate studies, University of Ottawa / NRC Ottawa. Advisor: P. Hawrylak. |
| 10/1998–06/2003 | MSc in Mathematical Physics, University of Warsaw. Advisor: J. Dereziński. |

PROFESSIONAL EXPERIENCE

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| 05/2021 – present | Adam Mickiewicz University in Poznań , Department of Mathematics and Computer Science.
Associate Professor and Group Leader within the NCN Program ‘Sonata Bis’. |
| 10/2020 – 04/2021 | Adam Mickiewicz University in Poznań , Department of Mathematics and Computer Science.
Assistant Professor and Group Leader within the NCN Program ‘Sonata Bis’. |
| 10/2017 – 10/2020 | Technical University of Munich , Mathematics Department.
Group Leader within the Emmy Noether Programme of the German Research Foundation (DFG). |
| 04/2017 – 09/2017 | Ludwig-Maximilian University of Munich , Mathematics Department.
Substitute Professor (W2). |
| 03/2014 – 03/2017 | Technical University of Munich , Mathematics Department.
Group Leader within the Emmy Noether Programme of the German Research Foundation. |
| 04/2013 – 02/2014 | ETH Zürich , Theoretical Physics Department.
Postdoctoral Fellow; Advisor: G.M. Graf. |
| 12/2012 – 03/2013 | University of Paris-Sud , Mathematics Department.
Fellow of the DFG; Advisor: C. Gérard. |
| 09/2012 – 12/2012 | Hausdorff Research Institute for Mathematics, Bonn .
Group Leader, Junior Trimester Program ‘Mathematical Physics’. |
| 03/2012 – 08/2012 | University of Paris-Sud , Mathematics Department.
Fellow of the DFG; Advisor: C. Gérard. |
| 09/2011 – 02/2012 | University of Aarhus , Mathematics Department.
Postdoctoral Fellow; Advisor: J.S. Møller. |
| 04/2009 – 08/2011 | Technical University of Munich , Mathematics Department.
Postdoctoral Fellow; Advisor: H. Spohn. |

GRANTS AND AWARDS

12/2017	AHP Prize for the most remarkable article in Annales Henri Poincaré in 2016: <i>Lieb-Robinson bounds, Arveson spectrum and Haag-Ruelle scattering theory in gapped quantum spin systems</i> jointly with S. Bachmann and P. Naaijken.
10/2020–10/2025	Sonata Bis Grant of the NCN (700,000 EUR) Host institution: Adam Mickiewicz University in Poznań.
09/2019–08/2020	Emmy Noether Grant, extension (200.000 EUR). Host institution: Technical University of Munich.
03/2014–08/2019	Emmy Noether Grant of the DFG (1.000.000 EUR). Host institution: Technical University of Munich.
03/2014–02/2017	Rita Levi Montalcini (190.000 EUR). Research Grant of the Italian Ministry of Education (declined).
03/2012–03/2014	Research Fellowship of the DFG (50.000 EUR). University of Paris-Sud / ETH Zürich.
09/2012–12/2012	Fellowship of the Hausdorff Research Institute for Mathematics (40.000 EUR). Received jointly with K. Rejzner, J. Schlemmer and Y. Tanimoto.
05/2018–06/2019	Grant of the Center for French-Bavarian University Collaboration (2.000 EUR). Received jointly with M. Wrochna.

EVENT ORGANIZATION

07/2017-present	Workshop series: ‘Colloquia on Mathematics and Foundations of Quantum Theory’, AMU Poznań / University of Tübingen / LMU / University of Regensburg. Co-organized biannually with F. Finster, D. Deckert and P. Pickl.
04/2025	Poznań Spring School in Mathematical Physics. Adam Mickiewicz University in Poznań. Main organizer.
09/2023	47th LQP Workshop: ‘Foundations and Constructive Aspects of QFT’, Adam Mickiewicz University in Poznań. Main organizer.
03/2017	Workshop: ‘Macroscopic Limits of Quantum Systems’, Technical University of Munich / LMU. Main organizer.
05/2016	38th LQP Workshop: ‘Foundations and Constructive Aspects of QFT’, Institute for Advanced Study, Technical University of Munich. Main organizer.
10/2015	Workshop: ‘Quantum Field Theory: Infrared and Constructive Aspects’, Mathematics Department, Technical University of Munich. Main organizer.
09/2012	Workshop: ‘Algebraic Quantum Field Theory and Local Symmetries’, Hausdorff Research Institute for Mathematics, Bonn. Main organizer.

INVITED CONFERENCE TALKS

- 05/2025 **W. Dybalski** and J. Mund. *Interacting massless infraparticles in 1+1 dimensions*. BIRS-IMAG Workshop “Geometry, Analysis and Physics in Lorentzian Signature”, Grenada, Spain.
- 06/2024 B. Biadasiewicz and **W. Dybalski**. *Quantum phase transition of infrared radiation*. 48th LQP Workshop and Detlev-Fest, University of Leipzig, Germany.
- 06/2023 **W. Dybalski**. *The infrared problems in QED. Some topics of current research*. ‘Workshop on Positronium’, John Bell Institute for the Foundations of Physics, Hvar Island, Croatia.
- 09/2022 **W. Dybalski**. *The quantum stress-energy tensor and asymptotic completeness*. ‘Energy conditions in quantum field theory’, University of Leipzig.
- 09/2022 V. Beaud, **W. Dybalski** and G.M. Graf. *Infraparticle states in the massless Nelson model – revisited*. ‘Mathematical physics: new developments and perspectives’, Académie Polonaise des Sciences, Centre Scientifique à Paris, France.
- 05/2020 **W. Dybalski** and V. Morinelli. *The Bisognano-Wichmann property for asymptotically complete massless QFT*. ‘Scattering, microlocal analysis and renormalization’, Mittag-Leffler Institute, Sweden. (Online).
- 09/2019 **W. Dybalski** and V. Morinelli. *Bisognano-Wichmann property in algebraic QFT of massless particles*. ‘Group Action Forum’, University of Poznań, Poland.
- 07/2019 **W. Dybalski**. *Large gauge transformations, asymptotic charges and soft-photon theorems*. ‘Mathematics of interacting QFT models’, University of York, UK.
- 08/2018 **W. Dybalski**. *Infrared problems in QED: Some topics of current research*. ‘Physics and Mathematics of QFT’, BIRS Banff, Canada.
- 07/2018 S. Bachmann, **W. Dybalski**, P. Naaijkens. *Lieb-Robinson bounds, Arveson spectrum and Haag-Ruelle scattering theory in gapped quantum spin systems*. ‘International Congress of Mathematical Physics’, Montreal. AHP Prize session.
- 05/2017 **W. Dybalski**. *Non-relativistic QED in different gauges*. ‘Foundational and Structural Aspects of Gauge Theories’, MITP Mainz.
- 05/2017 **W. Dybalski**. *From LSZ ideas to non-commutative recurrence*. ‘Wolfhart Zimmermann Memorial Symposium’, MPI Munich.
- 12/2016 **W. Dybalski**. *Non-relativistic QED in different gauges*. ‘Infrared Problems in QED and Quantum Gravity’, Perimeter Institute, Waterloo, Canada.
- 11/2016 **W. Dybalski**. *Mathematical foundations of Quantum Field Theory*. ‘Autumn School on Mathematical Foundations of Physics’, LMU Munich.
- 07/2016 **W. Dybalski** and C. Gérard. *Asymptotic observables and the problem of asymptotic completeness in QFT*. Workshop ‘Recent Mathematical Developments in Quantum Field Theory’, Mathematical Research Institute of Oberwolfach.
- 02/2016 **W. Dybalski** and C. Gérard. *A criterion for asymptotic completeness in local relativistic QFT*. Spring Meeting of the German Physical Society, University of Hamburg.
- 07/2015 S. Alazzawi and **W. Dybalski**. *Compton scattering in the Buchholz-Roberts framework of relativistic QED*. Conference ‘Operator Algebras and Quantum Physics’, University of Sao Paulo, Brazil.

INVITED CONFERENCE TALKS (continued)

- 09/2014 **W. Dybalski** and A. Pizzo. *Towards a consistent description of Coulomb scattering in QFT*. Conference ‘Mathematical Physics in Jena’, University of Jena.
- 03/2014 **W. Dybalski** and A. Pizzo. *Coulomb scattering in QFT. A status report*. Workshop ‘Many body quantum systems’, University of Warwick.
- 11/2013 **W. Dybalski** and A. Pizzo. *Towards a consistent description of Coulomb scattering in QFT*. Workshop ‘Mathematical Physics’, ETH Zürich.
- 06/2013 **W. Dybalski** and J.S. Møller. *Asymptotic completeness below the two-boson threshold in the massive translation invariant Nelson model*. Workshop ‘Spectral and scattering theories in QFT’, University of Bordeaux.
- 04/2013 **W. Dybalski** and C. Gérard. *Towards asymptotic completeness in local relativistic QFT*. Conference ‘Variational and spectral methods in QFT’, Henri Poincaré Institute, Paris.
- 09/2012 **W. Dybalski** and C. Gérard. *Towards asymptotic completeness in massive relativistic QFT*. Conference ‘Modern trends in algebraic QFT’, National Institute for Nuclear Physics, Frascati.
- 04/2012 **W. Dybalski** and J.S. Møller. *Towards asymptotic completeness in the translation invariant massive Nelson model*. ZiF Workshop ‘Mathematical aspects of quantum mechanics and quantum transport theory’, Bielefeld.
- 09/2011 **W. Dybalski**. *Inclusive cross-sections in relativistic and non-relativistic QED*. ESI Workshop ‘Rigorous quantum field theory in the LHC era’, Vienna.
- 09/2011 **W. Dybalski** and Y. Tanimoto. *Deformations of conformal field theories and the problem of asymptotic completeness*. Conference ‘Modern trends in algebraic QFT’, Pavia.
- 08/2011 **W. Dybalski** and Y. Tanimoto. *Particle aspects of chiral conformal field theories*. Workshop ‘Constructive and perturbative aspects of QFT’, University of Durban.
- 04/2011 **W. Dybalski** and Y. Tanimoto. *Deformations of conformal field theories and the problem of asymptotic completeness*. EU-NCG 4th Annual Meeting, University of Bucharest.
- 06/2010 **W. Dybalski** and Y. Tanimoto. *Asymptotic completeness in wedge-local QFT*. ESI Workshop ‘Matter and radiation’, Vienna.
- 09/2005 **W. Dybalski**. *Haag-Ruelle scattering theory in presence of massless particles*. Workshop ‘Analysis and quantum theory’, Oberwolfach.

SUPERVISION

10/2021–04/2024	Postdoc: Dr. Paweł Duch (AMU Poznań) Topic: ‘Stochastic quantization of quantum field theories’.
09/2021–02/2023	Postdoc: Dr. Abhishek Goswami (AMU Poznań) Topic: ‘Bałaban approach to renormalization’.
03/2019–09/2019	Postdoc: Dr. Maximilian Duell (TU Munich) Topic: ‘Asymptotic completeness in wedge-local QFT’.
01/2017–09/2018	Postdoc: Dr. Daniela Cadamuro (TU Munich) Topic: ‘Infravacuum representations in QED’.
10/2014–09/2016	Postdoc: Dr. Sabina Alazzawi (TU Munich) Topic: ‘Compton scattering in the Buchholz-Roberts setting’.
01/2020–present	PhD student: Bartosz Biadasiewicz (AMU Poznań) Topic: ‘Lightcone normality of infravacuum’.
10/2021–present	PhD student: Janik Kruse (AMU Poznań) Topic: ‘Asymptotic observables in relativistic QFT’.
10/2020–present	PhD student: Azam Jahandideh (AMU Poznań) Topic: ‘Stochastic quantization of quantum field theories’.
04/2015–02/2019	PhD student: Maximilian Duell (TU Munich) Thesis: ‘Non-local methods in Haag-Ruelle scattering theory.’ Defended on 27/02/2019 (<i>summa cum laude</i>). Prize of the German Physical Society (DPG) for the best PhD thesis at a German university in the category ‘Matter and Cosmos’ in 2019.
09/2018–present	MSc project ‘Quantum field theory with theta-interaction’.
09/2018–07/2019	MSc thesis: ‘On self-adjointness of Noether charges in AQFT’.
04/2018–05/2019	MSc thesis ‘The necessity of indefinite metric Hilbert space in QED’.
06/2017–08/2018	MSc thesis: ‘External current QED in different gauges’.
08/2015–03/2017	MSc thesis ‘LSZ reduction in QFT and lattice systems’.
04/2013–12/2013	MSc thesis: ‘Scattering in quantum field theories without mass gap’.
10/2013–03/2014	MSc thesis: ‘Construction of detectors of charged particles in algebraic QFT’.
04/2018–09/2018	BSc thesis: ‘Soliton solutions and scattering theory of Maxwell-Newton equations’.
04/2017–09/2017	BSc thesis: ‘Existence of solutions for a coupled system of Maxwell-Newton equations’.

TEACHING**Technical University of Munich.**

- 10/2020–02/2021 Lecturer: ‘Quantum Field Theory’, Physics Master Course, 4 hours/week. (Online)
- 10/2019–02/2020 Lecturer: ‘Quantum Field Theory’, Physics Master Course, 4 hours/week.
- 10/2018–02/2019 Lecturer: ‘Quantum Field Theory’, Physics Master Course, 4 hours/week.
- 10/2017–02/2018 Lecturer: ‘Quantum Field Theory’, Physics Master Course, 4 hours/week.
I taught the above two courses jointly with a colleague from the Physics Department and my part was 14 hours/semester on mathematical foundations. I participated in the development of this core module of the Elite Master Course ‘Theoretical and Mathematical Physics’.
- 04/2016–07/2016 Lecturer: ‘Non-relativistic QED’, specialised course, 2 hours/week.
- 10/2014–02/2015 Lecturer: ‘Algebraic Quantum Field Theory’, specialized course, 4 hours/week.

Ludwig-Maximilian University of Munich.

- 04/2017–07/2017 Lecturer: ‘Mathematics II for Physicists’, basic course, 4 hours/week.
- 04/2017–07/2017 Lecturer: ‘Algebraic Quantum Field Theory’, specialized course, 4 hours/week.

University of Göttingen.

- 10/2007–02/2008 Head Teaching Assistant: ‘Statistical Mechanics and Thermodynamics’.
- 04/2007–07/2007 Teaching Assistant: ‘Quantum Mechanics I’.
- 10/2006–02/2007 Teaching Assistant: ‘Classical Mechanics’.
- 04/2006–07/2006 Teaching Assistant: ‘Quantum Mechanics I’.

University of Ottawa.

- 09/2003–04/2004 Teaching Assistant: ‘First Physics Lab’.

University of Warsaw.

- 02/2002–06/2002 Teaching Assistant: ‘Theory of Linear Operators’.

PROFESSIONAL SERVICES

2019–2021	<p>Member of the advisory council (Beirat) of the Mathematical Physics section of the German Physical Society (DPG).</p> <p>Research Training Group evaluation for the German Research Foundation (DFG).</p> <p>Proposal review for the German Research Foundation (DFG).</p> <p>Member of a recruitment committee for Assistant and Associate Professor positions at the AMU Poznań.</p> <p>Book review for Springer Mathematics.</p> <p>Article review for Commun. Math. Phys., J. Math. Phys., Lett. Math. Phys., Ann. Henri Poincaré, Rep. Math. Phys., SIGMA, Phys. Rev. Lett., Phys. Rev. A., Math. Phys. Anal. Geom., J. Non-Equilibrium Thermodynamics, Rev. Math. Phys., Inventiones Mathematicae, Annals of Probability.</p> <p>Editor of the proceedings volume ‘Macroscopic Limits of Quantum Systems’ within the PROMS series of Springer.</p>
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ADDITIONAL PROFESSIONAL QUALIFICATIONS

09/2015	Participation in a workshop ‘ University didactics: development of competence oriented teaching ’ of the German Research Foundation and Center for Science and Research Management.
12/2016	Participation in a workshop ‘ Leading a research group ’ of the German Research Foundation and Center for Science and Research Management.

LANGUAGES

English, German, Polish.