Department of Mathematics
University of York
York YO10 5DD
(+44) 1904 32 3093
kr763@york.ac.uk
rejzner.com

KASIA REJZNER

Employment:

- **April 2017 - present**, senior lecturer (tenured), Department of Mathematics, University of York, UK.
- **October 2013 - March 2017**, lecturer (tenured), Department of Mathematics, University of York, UK.
- **July 2012 - August 2013**, post-doc, Department of Mathematics, University of Rome Tor Vergata, Italy.
- **November 2011 - June 2012**, post-doc, Department of Mathematics, University of Hamburg, Germany.

Qualifications:

- **2011**, Ph.D. in physics, with distinction (supervisor: K. Fredenhagen), University of Hamburg, Germany.
- **2009**, M.Sc. in physics, with distinction, Jagiellonian University in Cracow, Poland.

RESEARCH

I am a mathematical physicist and my research concerns mathematical aspects of quantum field theory (QFT), with a particular focus on understanding interactions between quantum theory and gravitation.

Publications

In mathematical physics publications, the order of authors is always *alphabetical*. In all my publications with joint authorship, I was an equal contributor.

(i) Books and Reports

a) Authored books:

K. Rejzner, *Perturbative algebraic quantum field theory. An introduction for mathematicians*, Springer, 2016.

b) Other reports in the public domain:

- K. Rejzner, *Local gauge symmetries in locally covariant field theory*, 2013, Oberwolfach Report No. 138/2013, Mini-Workshop: New Crossroads between Mathematics and Field Theory, DOI: `10.4171/OWR/2013/38`.
- K. Rejzner, *BV algebras in quantum field theory*, 2014, Oberwolfach Report No. 11/2014, Mini-Workshop: Batalin-Vilkovisky Algebras, Operads, and Hopf Algebroids, DOI: `10.4171/OWR/2014/11`.
- K. Rejzner, *BV algebras in causal QFT*, 2016, Oberwolfach Report No. 25/2016, Workshop: Factorization Algebras and Functorial Field Theories, DOI: `10.4171/OWR/2016/25`.

- K. Rejzner, *Renormalization on Lorentzian manifolds in pAQFT*, 2016, Oberwolfach Report No. 25/2016, Workshop: The Renormalization Group,
  DOI: `10.4171/OWR/2016/26`.

(ii) Chapters in books

- K. Fredenhagen, K. Rejzner, *Local covariance and background independence*, book chapter in *Quantum Field Theory and Gravity: Conceptual and Mathematical Advances in the Search for a Unified Framework*, F. Finster, O. Müller, M. Nardmann, J. Tolksdorf, E. Zeidler, (Eds.), Birkhäuser, 2012.
- K. Fredenhagen, K. Rejzner, *Perturbative algebraic quantum field theory*, book chapter in *Mathematical Aspects of Quantum Field Theories*, D. Calaque, T. Strobl (Eds.), Springer, 2015.
- K. Fredenhagen, K. Rejzner, *Perturbative Construction of Models of Algebraic Quantum Field Theory*, book chapter in *Advances in Algebraic Quantum Field Theory*, R. Brunetti, C. Dappiaggi, K. Fredenhagen, J. Yngvason (Eds.), Springer, 2015.

(iii) Articles in journals.

1. K. Rejzner, *Fermionic fields in the functional approach to classical field theory*, Rev. Math. Phys. **23** (2011) 1009-1033.
2. A. Herdegen, K. Rejzner, *Spacelike localization of long-range fields in a model of asymptotic electrodynamics*, Annales Henri Poincaré **12** (2011) 1387-1415.
3. K. Fredenhagen, K. Rejzner, *Batalin-Vilkovisky formalism in the functional approach to classical field theory*, Commun. Math. Phys. **314** (2012) 93-127.
4. K. Fredenhagen, K. Rejzner, *Batalin-Vilkovisky formalism in perturbative algebraic quantum field theory*, Commun. Math. Phys. **317** (2013), 697-725.
5. R. Brunetti, M. Dütsch, K. Fredenhagen, K. Keller, K. Rejzner, *Dimensional Regularization in Position Space, and a Forest Formula for Epstein-Glaser Renormalization*, J.Math.Phys. **55** (2014), 122303.
6. R. Brunetti, K. Fredenhagen, P. Imani, K. Rejzner, *The Locality Axiom in Quantum Field Theory and Tensor Products of C^*-algebras*, Rev. Math. Phys. **26** (2014) 1450010.
7. D. Bahns, K. Rejzner, J. Zahn, *The effective theory of strings*, Commun. Math. Phys. **327** (2014) 779-814.
8. K. Rejzner, *Remarks on local symmetry invariance in perturbative algebraic quantum field theory*, Annales Henri Poincaré **16** (2015), 205-238.
9. K. Fredenhagen, K. Rejzner, *QFT on curved spacetimes: axiomatic framework and examples*, J.Math.Phys. **57** (2016), 031101.
10. R. Brunetti, K. Fredenhagen, K. Rejzner, *Quantum gravity from the point of view of locally covariant quantum field theory*, Commun. Math. Phys. **345** (2016), 741-779,
    DOI: `10.1007/s00220-016-2676-x`.
11. R. Brunetti, K. Fredenhagen, B. Pinamonti, T.-P. Hack, K. Rejzner, *Cosmological perturbation theory and quantum gravity*, J. High Energ. Phys. (2016),
    DOI: `10.1007/JHEP08(2016)032`.
12. D. Bahns, K. Rejzner, *The Quantum Sine Gordon model in perturbative AQFT*, Commun. Math. Phys. (2017),
    DOI: `10.1007/s00220-017-2944-4`.

(iv) Papers published in refereed conference proceedings

- F. Fayette, M. W. Krasny, W. Placzek, K. Rejzner, A. Siódmok, *A strategy for precision measurements of the W-boson mass and width at the LHC*, PoS (2009) 095, proceedings of the conference HCP 2009, 16-20 November 2009.

- K. Rejzner, *Perturbative algebraic QFT as a universal framework for constructing physically motivated models in quantum field theory*, PoS(FFP14)147, proceedings of the conference Frontiers of Fundamental Physics 14, Marseille, July 15-18, 2014.

(v) All other works

- K. Rejzner, *Batalin-Vilkovisky formalism in locally covariant field theory*, Ph.D. thesis, DESY-THESIS-2011-041, Hamburg, 2011.

- K. Rejzner, *Effective quantum gravity observables and locally covariant QFT*, International Journal of Modern Physics D **25** (2016), 1630012, extended version of a plennary talk given at the XIV Marcel Grossman Meeting (see section B4(ii)).

Research Funding

- K. Rejzner, 2009-2011, doctoral fellowship of Evangelisches Studienwerk e.V. Villigst.

- K. Rejzner, W. Dybalski, J. Schlemmer, Y. Tanimoto, 2012, *Local gauge invariance in algebraic quantum field theory*, grant of HIM (Hausdorff Research Institute for Mathematics in Bonn) to organize a trimester program.

- K. Rejzner, 2012-2013, "incoming type" grant of the INdAM-COFUND, a fellowship of Istituto Nazionale di Alta Matematica "F. Severi" funded by Marie Curie Actions.

- K. Rejzner, 2015-2016, Emmy Noether fellowship, granted by the Perimeter Institute.

- K. Rejzner, M. Benini, A. Schenkel, Ch. Schweigert, December 2016, funding for an MFO (Mathematisches Forschungsinstitut Oberwolfach) mini-workshop *New interactions between homotopical algebra and quantum field theory* (duration of one week, for about 16 participants with full accommodation and subsistence costs covered).

- K. Rejzner, G. Honecker, S. Paycha, K. Wendland, March 2017, funding for a MITP (Mainz Institute for Theoretical Physics) workshop *Women at the Intersection of Mathematics and High Energy Physics* (duration of one week, for about 20 participants).

- K. Rejzner, **EPSRC Starting Grant**, 24 months commencing in September 2017, total value of 96998 GBP.

Research Students

- Francis Wingham, current Ph.D. student, started in October 2014, **main supervisor**.

- Michael Kiss, current Ph.D. student, started in October 2015, **co-supervisor**.

- Christoph Minz, commencing Ph.D. student, starting in October 2017, **main supervisor**.

- Alexandre Hefren de Vasconcelos Junior, commencing Ph.D. student, starting in October 2017, **main supervisor**.

Other research activities and distinctions

(i) Conference and workshop talks

Plenary conference talks: (date, name of the conference, place, title of the talk)

2015   **12-16 July**, *XIV Marcel Grossmann Meeting*, Rome, Italy, "Effective quantum gravity from the point of view of perturbative algebraic QFT".

The Marcel Grossman Meetings were founded in 1975 and they happen every 3 years. They are meetings of theoretical and experimental general relativity, gravitation, and relativistic field theories. Giving a plenary talk at such meetings is considered a major honor. The XIV Marcel Grossman Meeting in Rome hosted around 1200 participants.

2016   **25 July**, *Classical and Quantum Symmetries in Mathematics and Physics*, Jena, Germany, "BV quantization on Lorentzian manifolds and applications in perturbative quantum gravity".

2017   **5 May**, *Manchester SIAM-IMA Student Chapter Conference*, Manchester, UK, " Mathematics of Black Holes and the Big Bang".

Other invited conference talks: (date, name of the conference/workshop, place, title)

2012   **5-7 September**, *String Theory and Algebraic Geometry*, Bristol, Great Britain, "Algebraic and combinatorial structures in Epstein-Glaser renormalization".

17-21 September, *Renormalization at the confluence of analysis, algebra and geometry*, the Luminy Institute of Mathematics (Marseille), France, "Renormalized Batalin-Vilkovisky formalism in perturbative algebraic quantum field theory".

17-19 December, *Noncommutative Geometry and Applications to Physics*, Milano, Italy, "Locally covariant QFT as a way to quantize geometrical structures".

2013   **8-12 July**, *Mathematics and Quantum Physics*, Rome, Italy, "Interplay between Gravity and Quantum Physics from the Point of View of General Local Covariance".

22-27 July, *New Crossroads between Mathematics and Field Theory*, Oberwolfach mini-worksop, MFO, Germany, "Local gauge symmetries in locally covariant field theory".

08-13 September, *Geometry of Strings and Fields*, Galileo Glailei Institute, Florence, Italy, "Effective quantum gravity as a locally covariant QFT".

2014   **6-10 January**, *Approaches to Quantum Gravity*, Clermont-Ferrand, France, "Background independence of quantum gravity in the framework of general local covariance".

24-28 February, *Batalin-Vilkovisky Algebras, Operads, and Hopf Algebroids*, Oberwolfach mini-worksop, MFO, Germany, "BV-algebras in quantum field theory".

9-23 May, *Algebraic Quantum Field Theory: Its Status and Its Future*, (Erwin Schrödinger Institute), Vienna, Austria, "Perturbative algebraic quantum field theory: recent results and new perspectives".

14-18 July, *Frontiers of Fundamental Physics*, Marseille, France, "pAQFT as a universal framework for constructing physically motivated models in quantum field theory".

2015   **7-11 September**, *Hyperbolic Equations on Spacetimes: Stability, microlocal Analysis and Quantum Field Theory*, ESI, Vienna, Austria, "From quantum field theory on Lorentzian manifolds to perturbative quantum gravity".

21-25 September, DMV Jahrestagung (Yearly meeting of the German Association of Mathematicians), Hamburg, Germany, "BV algebras in causal approach to renormalization".

8-9 October, *Quantum Field Theory: Infrared problems and constructive aspects*, Munich, Germany, "Algebraic adiabatic limit in theories with local symmetries".

2016   **10-13 February**, *Paths to, from and in renormalisation*, Potsdam, Germany, "Epstein-Glaser Renormalization on Curved Spacetimes: Algebraic Structures and Analytic Properties".

8-14 May, *Factorization Algebras and Functorial Field Theories*, Oberwolfach workshop, MFO, Germany, "BV algebras in causal QFT".

22-27 May, *Renormalization Group*, Oberwolfach workshop, MFO, Germany, "Renormalization on Lorentzian manifolds in pAQFT".

26-27 September, *Local Quantum Physics and beyond - in memoriam Rudolf Haag*, Hamburg, Germany, "Locality and beyond: from algebraic quantum field theory to effective quantum gravity."

2017   **4-7 April**, *Quantum Field Theory: Concepts, Constructions & Curved Spacetimes*, York, UK, "Convergence of the Epstein-Glaser S-matrix in the Sine-Gordon model."

8-15 May, *Quantum Field Theory on Manifolds with Boundary and the BV Formalism*, Perimeter Institute, Waterloo, Canada, "Building bridges between Lorentzian and Euclidean formalisms for BV quantization."

29 May-2 June, *Foundational and structural aspects of gauge theories*, MITP, Mainz, Germany, "BV formalism in functorial QFT in Lorentzian and Euclidean signature."

24-28 July, *String Math 2017*, York, UK, "New perspective on Sine-Gordon model and perturbative QFT."

Contributed conference talks: (date, name of the conference/workshop, place, title)

2009   **15-20 November**, *HCP2009 - Hadron Collider Physics Symposium*, Evian-les-Bains, France, "A strategy for a Precision Measurement of the W-boson Mass and Width at the LHC".

2010   **19-20 November**, 27th Workshop *Foundations and Constructive Aspects of QFT* Leipzig, Germany, "BRST transformation in classical Yang-Mills theories and gravity".

2011   **28 March - 1 April**, DPG Frühjahrstagung (yearly meeting of German Physicists Association) Karlsruhe, Germany, "The BV formalism applied to classical gravity".

15-16 April, *Transformation Groups and Mathematical Physics 7*, Paderborn, Germany, "Batalin-Vilkovisky formalism and General Relativity".

20-22 June, *43rd Symposium on Mathematical Physics*, Toruń, Poland, "Local covariance and observables in general relativity".

14-16 September, *Modern Trends in AQFT*, Pavia, Italy, "BV Quantization in perturbative AQFT".

20 September - 1 October, *Rigorous Quantum Field Theory in the LHC era*, ESI, Vienna, Austria, "Gauge theories in the algebraic approach to perurbative quantization".

18-19 November, 29th Workshop *Foundations and Constructive Aspects of QFT*, Leipzig, Germany, "The classical and the quantum master equation in locally covariant field theory".

2012   **16-20 January**, Simons Center workshop *Mathematical Foundations of Quantum Field Theory*, Simons Center for Geometry and Physics, Stony Brook, USA, "BV Quantization in perturbative algebraic quantum field theory".

15-18 February, *Planckland, Quantum Geometry and Matter*, Trieste, Italy, "Quantization of geometrical structures in locally covariant field theory".

27 February - 1 March, DPG Frühjahrstagung (yearly meeting of German Physicists Association), Göttingen, Germany, "Locally covariant field theory as an approach to quantum gravity".

2-6 July, *Periods and Motives*, Madrid, Spain, "New notion of a renormalized time ordered product in perturbative algebraic quantum field theory".

6-10 August, *International Congress on Mathematical Physics*, Aalborg, Denmark, "Quantization of theories with local symmetries in perturbative algebraic QFT".

12-14 September, *New Trends in Algebraic Quantum Field Theory*, INFN Frascati, Italy, "Einstein causality in Quantum Field Theory and Tensor Products of C^*-algebras".

16-18 October, Interdisciplinary symposium *Raum und Materie* (Space and Matter), Haus Villigst (Schwerte), Germany,

2013   **25 February - 1 March**, *DPG Frühjahrstagung* (yearly meeting of German Physicists Association), Jena, Germany, "Diffeomorphism invariant quantum fields in perturbative algebraic quantum field theory".

31 May - 1 June, 32$^\text{nd}$ Workshop *Foundations and Constructive Aspects of QFT*, Wuppertal, Germany, "Quantum gravity from the point of view of locally covariant QFT".

2014   **12 May**, *NBMPS* (North British Mathematical Physics Seminar), York, UK, "Analytic regularization in causal perturbation theory: new results and perspectives".

15-19 September, *Numbers and Physics*, Madrid, Spain, "Geometrical interpretation of the Stückelberg-Peterman renormalization group".

29 September - 3 October, Simons Center workshop *Homological Methods in Quantum Field Theory*, Simons Center for Geometry and Physics, Stony Brook, USA, "BV algebras in perturbative algebraic quantum field theory".

14-15 November, 35$^\text{th}$ Workshop *Foundations and Constructive Aspects of QFT*, Goslar, Germany, "New perspective on algebraic structures in Epstein-Glaser renormalization".

2015   **11-15 February**, *New Trends in Algebraic Quantum Field Theory (AQFT2015)*, Frascati, Italy, "Relational observables in effective quantum gravity from the point of view of pAQFT".

3-9 March, *The interrelation between mathematical physics, number theory and non-commutative geometry*, ESI, Vienna, Austria, "BV algebras in perturbative AQFT and effective quantum gravity".

17-23 July, *Operator Algebras and Quantum Physics*, São Paulo, Brazil, "Locally covariant QFT and perspectives on quantum gravity".

2017   **12-16 June**, *Subfactors, K-theory and conformal field theory*, INI, Cambridge, UK, "The Quantum Sine-Gordon model in perturbative AQFT."

(ii) Visiting research posts and invited lectures

Invited research visits:

2013   **22-27 July**, participant at the mini-workshop *New Crossroads between Mathematics and Field Theory*, MFO (Mathematisches Forschungsinstitut), Oberwolfach, Germany.

2014   **24-28 February**, participant at the mini-workshop *Batalin-Vilkovisky Algebras, Operads, and Hopf Algebroids*, MFO, Oberwolfach, Germany.

2015   **5-20 September**, participant at the thematic program *Modern Theory of wave equations*, ESI (Erwin Schrödinger Institute), Vienna, Austria.

2016   **12-24 March**, visitor at the Perimeter Institute, Waterloo, Canada.

8-14 May, participant at the workshop *Factorization Algebras and Functorial Field Theories*, MFO, Oberwolfach, Germany.

22-27 May, participant at the workshop *Renormalization Group*, Oberwolfach workshop, MFO, Oberwolfach, Germany.

11 June-16 July, visitor at the Perimeter Institute, Waterloo, Canada.

26-30 July, participant at the workshop *Recent Mathematical Developments in Quantum Field Theory*, MFO, Oberwolfach, Germany.

28 August – 17 September 2016, visitor during the trimester program *Mathematical Physics at the Crossroads* at INFN Frascati. During the visit I gave a talk on the **12th of September** on the topic *New perspectives in effective quantum gravity and cosmological perturbation theory*.

2 October-17 December, visitor at the Perimeter Institute, Waterloo, Canada.

2017   **9-14 April, 22-25 April, 11-16 June**, participant at the Newton Institute Program *Operator algebras: subfactors and their applications*.

Invited lecture series:

2014   **9-10 April**, 2 lectures (4h), *Introduction into pAQFT*, University of Nottingham, UK.

       9-14 June, lecture series (15h), *BV formlism*, Claude Bernard University, Lyon, France.

2015   **22-26 June**, lecture series (15h), *Quantum gravity from the point of view of parturbative algebraic quantum field theory*, IHP (The Henri Poincaré Institute), Paris, France.

2017   **7-9 June**, mini-lecture series (3h), *Construction of models in the framework of perturbative algebraic QFT* at Journées de Physique Mathèmatique Lyon: Quantum Field Theories on Curved Space-Times, Lyon, France.

Invited seminar talks:

2008   **02 Juni**, *The localization properties at null infinity*, the quantum field theory seminar at the University of Göttingen, Germany.

2009   **12 May**, seminar *Algebra of asymptotic fields in electrodynamics*, mathematical physics seminar at II. Institute for Theoretical Physics in Hamburg.

       29 October, *Pedagogical introduction into algebraic quantum field theory*, seminar of differential geometry group at the Mathematics Institute of the Cracow Jagiellonian University.

2010   **07 January**, *Introduction into locally covariant quantum field theory*, seminar of differential geometry group at the Mathematics Institute of the Cracow Jagiellonian University.

       08 January, *Locally covariant quantum field theory as a way to quantum gravity*, seminar of field theory group at the Physics Institute of the Cracow Jagiellonian University.

2011   **08 April**, *Local covariance principle and perspectives in quantum gravity*, seminar of the theory group at the Warsaw University.

       08 April, *BV formalism in the functional approach to classical gravity*, seminar of the theory group at the Warsaw University, Poland.

       12 April, *Geometrical interpretation of the BV formalism and its application to classical gravity*, seminar of the Algebraic Quantum Field Theory group in Hamburg, Germany.

       03 June, *BV formalism in locally covariant field theory*, seminar of the field theory group, Cracow Jagiellonian University, Poland.

       07 July, *Applications of the infinite dimensional calculus in the functional approach to classical field theory*, research Seminar "Lie Theory", Institute of Mathematics, University of Paderborn, Germany.

       12 July, *BV formalism and observables in general relativity*, Mathematics Institute, University of Göttingen, Germany.

       10 November, *Local gauge invariance in perturbative algebraic quantum field theory*, Department of Mathematics, University of Rome Tor Vergata, Italy.

2012   **2 April**, *Batalin-Vilkovisky formalism in locally covariant field theory*, Séminaire d'analyse algébrique, Institut de Mathématiques de Jussieu, Paris, France.

5 April, *Gauge theories in the algebraic approach to perturbative quantization*, Séminaire de géométrie et physique mathématique, Institut de Mathématiques de Jussieu, Paris, France.

25 May, *Theories with local symmetries in the algebraic approach to perturbative quantization*, seminar of the field theory group, Cracow Jagiellonian University, Poland.

29 June, *The Locality Axiom in Quantum Field Theory and Tensor Products of C^*-algebras*, seminar of the Algebraic Quantum Field Theory group in Hamburg, Germany.

15 October, *Local gauge invariance in perturbative algebraic quantum field theory*, talk during the Trimester Seminar at the Hausdorff Research Institut for Mathematics (HIM), Bonn, Germany.

7 December, *Cohomology and functional analysis at work in renormalization of gauge theories*, Séminaire de Physique Mathématique, Université Claude Bernard Lyon 1, Lyon, France.

2013 **18 April**, *Quantum gravity from the point of view of locally covariant quantum field theory*, Séminaire de géométrie et physique mathématique, Institut de Mathématiques de Jussieu, Paris, France.

6 November, *Functional analytic aspects of perturbative algebraic quantum field theory*, University of Loughborough, UK.

2014 **15 May**, *From locally covariant QFT to quantum gravity*, Perimeter Institute, Waterloo, Canada.

26 June, *Einstein causality in locally covariant quantum field theory*, Cardiff, UK.

28 October, *New perspective on relational observables in effective quantum gravity*, Erlangen, Germany.

18 November, *The BV formalism and new perspective on observables in effective quantum gravity*, Leipzig, Germany.

4 December, *Renormalized quantum BV formalism in the Epstein-Glaser framework*, Zürich, Switzerland.

2015 **13 March**, *Perturbative construction of models in algebraic quantum field theory*, TUM (Technical University of Munich), Munich, Germany.

10 April, *Renormalization without infinities and algebraic structures in quantum field theory*, Warsaw University, Poland.

11 April, *Quantization of relative observables in parturbative algebraic QFT*, Warsaw University, Poland.

1 June, *Causality in the modern approach to foundations of quantum field theory*, Sigma Club, LSE (London School of Economics).

2016 **16 February**, *Functional analytic aspects of renormalization on Lorentzian manifolds*, analysis seminar, Glasgow, UK.

7 April, *Pertubative QFT*, ZMP (Center for Mathematical Physics) seminar, Hamburg, Germany.

30 May, *Gauge invariant observable in effective quantum gravity and cosmology*, Nijmegen, The Netherlands.

2017 **28 February**, *Mathematical structures in QFT: between functional analysis and geometry*, DAMTP, Cambridge, UK.

24 May, *Mathematical quantum field theory: from analysis to homological algebra*, pure mathematics colloquium, University of Sheffield, UK.

Symposia/conference organisation

    2012   **26-28 September**, co-organizing the Hausdorff Institute (HIM) Workshop *Algebraic Quantum Field Theory and Local Symmetries*, Bonn, Germany.

    2016   **16-18 July**, member of the program committee of the international conference *Foundations 2016*, LSE (London School of Economics), London, UK.

                 1-8 December, main organizer of the workshop *Infrared Problems in QED and Quantum Gravity*, Perimeter Institute, Waterloo, Canada.

                  18-23 December, one of the organizers of the MFO mini-workshop *New interactions between homotopical algebra and quantum field theory*, MFO, Oberwolfach, Germany.

    2017   **6-10 March**, one of the organizers of the workshop *Women at the Intersection of Mathematics and High Energy Physics*, Mainz Institute for Theoretical Physics (MITP), Mainz, Germany.

                  5-7 September, organizer of the international, EPSRC-funded, workshop *Modern Mathematics of Quantum Theory*, University of York, York, UK.

(iv) Invitations to referee for peer-reviewed journals

- Communications in Mathematical Physics (1-2 papers per year),
- Classical and Quantum Gravity (2-3 papers per year)
- Annales Henri Poinncaré (1-2 papers per year)
- Journal of Physics A (2-3 papers per year)

(viii) Membership, prizes and awards

    Memberships:

    2011-present, Deutsche Physikalische Gesellschaft (DPG, German Physicists Association).

    2012-present, IAMP (International Association of Mathematical Physics).

    2016-present, LMS (London Mathematical Society).

    Prizes:

    2012 Prize given by the University of Hamburg for theses defended *summa cum laude*.

    2012 Prize granted by the Association of the Friends and Sponsors of DESY for an outstanding Ph.D. thesis based on the research program at DESY.

TEACHING AND SUPERVISION

Courses taught

- **2013-2017**, **Classical Mechanics**, Year 2 undergraduate module in mathematics extending over 2 terms, University of York.
- **2013**, **QFT on curved spacetimes: axiomatic framework and applications**, a mini-course for Ph.D. students in mathematics, summer semester, University of Rome "Tor Vergata".

Supervision and support for students' learning

- **2011/12**, co-supervised a masters student (Master Programme in Mathematical Physics), University of Hamburg.
- **2013/14**, supervised a BSc project.
- **2014/15**, supervised a BSc project and an MMath project.
- **2015/16**, supervised 6 BSc projects and an MMath Group Project (3rd year MMath module, the group consisted of 4 students).
- **summer 2016**, supervised a summer student (supported by an EPSRC bursary).
- **2016/17**, supervising 5 BSc projects and an MMath project.

ACADEMIC CITZENSHIP

Departmental activities

Administrative roles in the department:

- **2013-2016**, *Mathematics Facilitator* for Natural Sciences and *Head of the Chemistry/Mathematics/Physics Pathway Program Committee.*
- **June 2015-present**, *Careers Liason Officer (now Careers and Employability Coordinator).*

Other forms of service and outreach

- I was chosen to be among 13 female mathematicians (2 from the UK) to take part in the exhibition project *Women of mathematics throughout Europe: a gallery of portraits*

  http://womeninmath.net/protagonist/kasia-rejzner/

  The opening of the photograph exhibition took place on the **20th of July 2016** during the 7th European Congress in Mathematics. The aim of the projects is to encourage more women to pursue career in Mathematics by providing them with role models.

- **27 January 2016**, public lecture at the MathSoc (Student Maths Society) Seminar (aimed at UG students), *Mysterious Beginnings of Everything.*

- **2 February 2017**, popular science lecture for Natural Science UG students at the University of York, *From quantum field theory to Quantum Gravity and the Big Bang.*

- **9 June 2017**, I led a session: *Throwing sticks to find pi*, during the outreach event *Maths: unlocking the world around us* aimed at school children.