

Faculty of Mathematics, Informatics and Mechanics

University of Warsaw

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EDUCATION AND TITLES

- April 2023 **University of Warsaw**, *Habilitation*
Granted with distinction for the work on *Generalizations of Białynicki-Birula decompositions and applications to moduli spaces*
- Oct 2013 – Sep 2017 **University of Warsaw**, *PhD student in Mathematics*
PhD Thesis *Hilbert schemes of points and their applications* (summa cum laude)
Advisor: Jarosław Buczyński. Auxiliary advisor: Weronika Buczyńska.

EMPLOYMENT

- Oct 2019 – **University of Warsaw**, *Samuel Eilenberg's assistant professor*
Oct 2017 – Sep 2019 **Polish Academy of Sciences**, *assistant professor*

SELECTED PUBLICATIONS

1. *Concise tensors of minimal border rank* with Joseph Landsberg and Arpal Pal, **Mathematische Annalen**, 2023.
2. *Hermitian K-theory via oriented Gorenstein algebras* with Marc Hoyois, Denis Nardin, and Maria Yakerson. **Journal für die reine und angewandte Mathematik (Crelle's Journal)**, vol. 2022, no. 793, 2022, pp. 105-142.
3. *Components and singularities of Quot schemes and varieties of commuting matrices* with Klemen Šivic, **Journal für die reine und angewandte Mathematik (Crelle's Journal)**, vol. 2022, no. 788, 2022, pp. 129-187.
4. *The Hilbert scheme of infinite affine space and algebraic K-theory* with Marc Hoyois, Denis Nardin, Burt Totaro and Maria Yakerson. To appear in **Journal of the European Mathematical Society (JEMS)**, arXiv:2002.11439, 2020.
5. *Pathologies on the Hilbert scheme of points*, **Inventiones mathematicae**, volume 220, pages 581–610 (2020).
6. *Białynicki-Birula decomposition for reductive groups in positive characteristic* with Łukasz Sienkiewicz. **Journal de Mathématiques Pures et Appliquées**, Volume 152, August 2021.
7. *Białynicki-Birula decomposition for reductive groups* with Łukasz Sienkiewicz. **Journal de Mathématiques Pures et Appliquées**, Volume 131, November 2019, Pages 290-325.
8. *Constructions of k-regular maps using finite local schemes* with Jarosław Buczyński, Tadeusz Januszkiewicz and Mateusz Michałek. **Journal of the European Mathematical Society (JEMS)** 21 (2019), no. 6, 1775–1808.
9. *Elementary components of Hilbert schemes*, **J. London Math. Soc.**, 100: 249-272, 2019.

Invited surveys:

10. *Open problems in deformations of Artinian algebras, Hilbert schemes and around* to appear in **Contemporary Mathematics** (AMS) volume edited by Anthony Iarrobino, Pedro Macias Marques, Maria Evelina Rossi and Jean Vallès.

For a complete list of publications, see
<http://www.mimuw.edu.pl/~jjelisiejew/publications.html>
<https://arxiv.org/search/math?searchtype=author&query=Jelisiejew>
<https://mathscinet.ams.org/mathscinet/search/author.html?mrauthid=1061482>

SELECTED STUDENTS AND POSTDOCS

- Dec 2021 **Łukasz Sienkiewicz**, *PhD student, cosupervised with Jarosław Wiśniewski*
Thesis *Generalized Białynicki-Birula Decompositions*, defended summa cum laude.
- Jun 2022 **Tomasz Mańdziuk**, *PhD student, cosupervised with Jarosław Buczyński*
Thesis *Limits of Saturated Ideals of Points with Applications to Secant Varieties*.
- 2020 – 2021 **Hanieh Keneshlou**, *unofficial postdoc collaborator*
Joint work *On construction of k -regular maps to Grassmannians via algebras of socle dimension two*, Annali SNS.
- 2021 **Michał Szachniewicz**, *MSc student*
Msc thesis *Non-reducedness of the Hilbert schemes of few points*, awarded Marcinkiewicz's and Step in the future prizes for best Polish student paper 2021.
- 2022 **Robert Szafarczyk**, *BSc project*
Final paper *New elementary components of the Gorenstein locus of the Hilbert scheme of points* published in *Communications in Algebra*. Awarded II prize and an honorary mention at Marcinkiewicz's and Step in the future competitions 2022.
- 2023 – **Piotr Oszer**, *PhD student*
- 2023 – **Jakub Jagieła**, *MSc student*
- 2023 – **Weronika Obcowska**, *MSc student*
- 2023 – **Bartosz Szachniewicz**, *BSc student*

CONFERENCES AND SCIENTIFIC COOPERATION

- Sep 2023 Hilbert scheme day, HU Berlin, **invited talk**
- Sep 2023 Gf 60 fest, Torino, **invited talk**
- Aug 2023 Scientific visit to Mateusz Michałek, Konstanz
- May 2023 Commutative Algebra workshop, Torino, **invited talk**
- Apr 2023 Scientific visit to Gergely Berczi, Aarhus, seminar talk
- Mar 2023 Scientific visit to Balazs Szendrői, Vienna, seminar talk
- Mar 2023 **Pulikowski's lecture**, UAM Poznań
- Aug 2022 Combinatorial Algebraic Geometry workshop, Bath, **invited talk**
- Jun 2022 Recent Advances in Classical Algebraic Geometry ICM satellite conference, **invited talk**
- Jun 2022 MEGA 2022, ICM satellite conference, **invited opening talk**
- Mar 2022 Invitation only MFO institute workshop
- Oct 2021 Seminar talk at IST, Vienna
- Oct 2021 Talk at *Tensor Days* workshop
- Aug 2021 **Invited talk** at SIAM meeting's session
- May 2021 Seminar talk at University of Stanford
- Apr 2021 Seminar talk at University of Trento

- Jan 2021 Seminar talk at University of Stockholm
- Dec 2020 Seminar talk at University of Kostanz
- Nov 2020 Seminar talk at Texas A&M
- Oct 2020 Seminar talk at Mumbai
- 14 Apr 2020 Zoom seminar at Texas A&M, USA
- 7 Apr 2020 Zoom seminar at Texas A&M, USA
- 3–5 Feb 2020 EPFL visit, invitation for a **series of lectures**
- 22–28 Sep 2019 Toric varieties *workshop in MFO institute* (invitation only, **invited talk**), Oberwolfach, Germany
- 8–22 Sep 2019 *Scientific cooperation with Mateusz Michałek*, Leipzig, Germany
- 2–7 Sep 2019 *100 years of Polish Math Society* congress (**invited talk** at special session, Cracow, Poland)
- Jul 2019 *Scientific cooperation with Maria Yakerson*, Warsaw, Poland
- Jun 2019 *Derived Categories*, Warsaw, Poland
- Jan 2019 *Scientific visit to Mateusz Michałek*, Leipzig, Germany (seminar talk)
- Nov 2018 *Workshop on T-varieties*, Warsaw, Poland, (**invited talk**)
- Sep 2018 *Meeting of Polish-Italian Math Societies*, Wrocław, Poland and Algebraic Geometry
- June 2018 *Scientific visit to Alex Constantinescu*, Berlin
- June 2018 *Scientific visit to Roberto Notari*, Milano
- 18–22 Sep 2017 *8 Forum of Polish Mathematicians*, Lublin (**invited talk** at the arithmetic geometry session).
- 5 May – 8 Jul 2017 *Deformations in Turin*, Torino (**contributed talk**).
- 27 May – 3 Jun 2017 Scientific visit to Maria E. Rossi and Shreedevi Masuti, Genova.
- 12 Aug – 11 Sep 2016 *Combinatorial Algebraic Geometry* semester at Fields Institute, Toronto, Canada.
- 28 Nov – 2 Dec 2016 *Algebra Geometry Meeting*, Barcelona (**invited talk**).
- 20 Aug – 3 Sep 2016 *Bernd Sturmfels’ apprenticeships at Combinatorial Algebraic Geometry*, Toronto, Canada.
- 15 Aug – 19 Aug 2016 *Introductory workshop at Combinatorial Algebraic Geometry*, Toronto, Canada.
- 1 – 4 Jul 2015 *Theory and applications of syzygies* on the occasion of Frank-Olaf Schreyer’s 60th birthday, Saarbrücken, Germany.
- 28 – 30 Jun 2015 Scientific meeting with J. Elias on Artin Gorenstein algebras, Barcelona.
- 25 – 26 Jun 2015 Scientific meeting with Maria E. Rossi on Artin Gorenstein algebras, Genova.
- 19 – 24 Jun 2015 Scientific cooperation with G. Casnati and R. Notari on smoothability of zero-dimensional schemes, Torino.
- 14 – 19 Jun 2015 *AGaFe* conference in honour of Philippe Ellia, Ferrara.
- 9 – 14 Jun 2015 *AMS-EMS-SPM meeting* in Porto, Portugal (**invited talk** on a special session).
- 16 – 20 Jun 2014 *Nordfjordeid Summer school 2014: Toric degenerations and mirror symmetry*, Nordfjordeid, Norway.
- 7 – 11 Apr 2014 Scientific visit to Bonn.
- 26 Feb – 4 Mar 2014 Scientific cooperation with G. Casnati and R. Notari on smoothability of zero-dimensional schemes, Warsaw.
- 23 – 26 Nov 2013 Scientific visit to A.A. Iarrobino, Northeastern University, Boston, MA, USA.
- 18 – 22 Nov 2013 *Graduate Workshop on Geometry of Hilbert schemes*, Stony Brook, NY, USA (**contributed talk**).

- 1 – 7 Sep 2013 36th Autumn School *Power sum decompositions and apolarity, a geometric approach*, Łukęcin, Poland (organiser).
- 14 – 20 Jul 2013 *Classical Aspects of Ring Theory and Module Theory*, Będlewo, Poland.
- 27 – 31 May 2013 *Szygies in Berlin* summer school of Freie Universität Berlin, Berlin.
- 15 – 22 May 2013 Scientific cooperation with G. Casnati and R. Notari on smoothability of zero-dimensional schemes, Politecnico di Torino, Torino, Italy.
- 16 – 24 Jan 2013 Scientific cooperation with G. Casnati and R. Notari on smoothability of zero-dimensional schemes, Politecnico di Torino, Torino, Italy.
- 23 – 29 Sep 2012 35th Autumn School *Subgroups of Cremona groups*, Łukęcin, Poland.
- 8 – 14 Jul 2012 SMI Summer Course *Tensors: Waring problems and Geometric Complexity Theory*, Cortona, Italy.
- 17 – 24 Sep 2011 34th Autumn School *Geometric Invariant Theory, old and new.*, Łukęcin, Poland.

PRIZES AND HONOURS

- 2021 **Scholarship for outstanding young scientists**, *Minister of Education, Poland*
- 2021 **Rector of University of Warsaw prize**, *University of Warsaw*
<https://www.uw.edu.pl/wp-content/uploads/2021/04/wyroz%CC%87nienia-rektora-2021-1.pdf>
- 2020 **START scholarship**, *Foundation for Polish Science*
- 2019 **Kuratowski's prize**, *IMPAN and Polish Math Society*
www.impan.pl/pl/wydarzenia/nagrody/nagroda-kazimierza-kuratowskiego.
- 2018 **Prime Minister of Poland Prize for PhD**,

PROJECTS

- 2021 – **Generalizations and applications of Białynicki-Birula decompositions**,
 Principal investigator, National Science Centre Sonata grant.
- 2015 – 2017 **Local geometry of the Hilbert scheme of points and its applications**,
 Principal investigator, National Science Centre Preludium grant.

POPULARIZATION

- May 2009 – **Białystok University of Technology**, *Coorganizer of local mathematical competition*
 The competition is designed as an intermediate step between school and Mathematical Olympiad, four relatively easy proof tasks are given/4h.
<http://konkurs.wi.pb.edu.pl>
- Dec 2016 – Sep 2019 **High School Mathematical Olympiad**, *Member of the Problem Committee*
<http://www.om.mimuw.edu.pl>
- Sep 2019 – **Junior Mathematical Olympiad**, *Member of the Committee*
<http://www.omj.edu.pl>
- 2014 **Stowarzyszenie Edukacji Matematycznej**, *Editor of two mathematical circles handbooks*

Each contains around 15 full articles suitable for math-circle use.

Oct 2006 – Jun 2014 **I LO, Białystok**, *Teacher of High school mathematical circle*

The circle was viewed toward Polish Math Olympiad and met each week for two hours. Homepage: <http://www.mimuw.edu.pl/~jjelisiejew/matma/>.

2008 – 2013

I LO, Białystok, *Main organiser of math summer camps*

Weekly summer camps for people interested in math and/or math olympiads.