

Piotr Achinger

PERSONAL DATA

DOB: July 28, 1986
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ACADEMIC INTERESTS

- **algebraic geometry**
positive characteristic algebraic geometry, higher ramification theory, logarithmic geometry, étale homotopy
- **arithmetic geometry**
 p -adic Hodge theory, arithmetic of Calabi–Yau varieties

EDUCATION AND EMPLOYMENT

2017–	Assistant Professor (adiunkt) at IMPAN (Warsaw, Poland)
2016–2017	EPDI postdoc, IHES (Bures-sur-Yvette, France)
2015–2016	EPDI postdoc, Banach Center (Warsaw, Poland)
2011–2015	PhD student, University of California, Berkeley Thesis title: $K(\pi, 1)$ Spaces in Algebraic Geometry Advisor: Arthur Ogus
2005–2011	M. Sc. Programme in Computer Science at University of Warsaw, Faculty of Mathematics, Informatics and Mechanics Advisor: Mikołaj Bojańczyk
2005–2010	M. Sc. Programme in Mathematics at University of Warsaw, Faculty of Mathematics, Informatics and Mechanics Advisor: Adrian Langer

PUBLICATIONS AND PREPRINTS

2017	<i>Wild ramification and $K(\pi, 1)$ spaces</i> , arXiv:1701.03197 , to appear in <i>Inventiones Mathematicae</i> .
2017	(with M. Zdanowicz) <i>Canonical liftings of ordinary Calabi–Yau varieties</i> , in preparation
2017	(with A. Ogus) <i>Monodromy and log geometry</i> , in preparation
2017	(with J. Witaszek and M. Zdanowicz) <i>Images of toric varieties and liftability of the Frobenius morphism</i> , arXiv:1708.03777 , submitted
2016	(with M. Zdanowicz) <i>Some elementary examples of non-liftable varieties</i> , to appear in <i>Proceedings of the AMS</i>
2014	(with N. Ilten and H. Süß) <i>F-split and F-regular varieties with a diagonalizable group action</i> , <i>Journal of Algebraic Geometry</i> (published electronically Dec 9, 2016)

- 2014 | *$K(\pi, 1)$ -neighborhoods and comparison theorems*, [arXiv:1407.0337](#), *Compositio Mathematica* 151 (2015), no. 10, 1945–1964.
- 2013 | *A characterization of toric varieties in characteristic p* , [arXiv:1303.5905](#), *International Mathematics Research Notices* 2015, no. 16, 6879–6892.
- 2013 | (with N. Perrin) *Spherical multiple flags*, [arXiv:1307.7236](#), in *Schubert Calculus – Osaka 2012*, *Advanced Studies of Pure Mathematics* vol. 71, 2017.
- 2010 | *Frobenius push-forwards on quadrics*, [arXiv:1005.0594](#), *Communications in Algebra* 40 (2012), no. 8

WORKSHOPS AND CONFERENCES

- Sep 2017 | Workshop Étale and motivic homotopy theory, Universität Heidelberg
- Aug 2017 | Conference Algebraic K -theory and Arithmetic, Banach Center, Bedlewo
- Jul 2017 | Workshop on Higgs bundles, K3 surfaces and moduli, HU Berlin
- May 2017 | Workshop Beyond Toric Geometry, CMO Oaxaca
- Apr 2017 | Hodge Theory, Stokes Phenomenon and Applications, CIRM Luminy, France
- Jan 2017 | Hypergeometric Motives and Calabi–Yau Differential Equations, MATRIX Institute, Creswick, Australia
- Jul 2016 | Higher Dimensional Algebraic Geometry, University of Utah, Salt Lake City
- Apr 2016 | Spring Western Sectional Meeting, University of Utah, Salt Lake City
- Sep 2016 | Arthur Ogus 70, IHES, Bures-sur-Yvette
- Jun 2015 | Géométrie arithmétique, théorie des représentations et applications, CIRM, Luminy
- Feb 2014 | Hot Topics: Perfectoid Spaces and their Applications, Berkeley, USA
- Nov 2013 | Western Algebraic Geometry Symposium, San Diego, USA
- Jun 2013 | Géométrie Algébrique en Liberté (GAeL) XXI, Stockholm, Sweden
- Dec 2012 | Galois representations and pencils of Calabi–Yau motives, Bonn, Germany
- Oct 2012 | Western Algebraic Geometry Symposium, Salt Lake City, USA
- Jun 2012 | Géométrie Algébrique en Liberté (GAeL) XX, Grenoble, France
- Jun 2012 | char- p and p -adic geometry, Mainz, Germany
- Apr 2012 | Western Algebraic Geometry Symposium, Seattle, USA
- Jan 2012 | Arithmetic, Motives and Moduli Spaces, Paris, France
- June 2011 | Géométrie Algébrique en Liberté (GAeL) XIX, Berlin, Germany
- Jan 2011 | School on Moduli Spaces, Cambridge, United Kingdom
- Nov 2010 | School on Instantons and Rationality of Moduli Spaces, Berlin, Germany
- Sep 2010 | Second School in Deformation Theory, Rome, Italy
- Jul 2010 | IMPANGA Summer School on Algebraic Geometry, Będlewo, Poland
- Feb 2010 | Conference on Algebraic Geometry and Arithmetic, Essen, Germany
- Feb 2010 | Sixth Meeting for Young Mathematicians, Segovia, Spain
- Sep 2009 | EAGER Summer School on Torus Actions, Łukęcin, Poland
- Jul 2009 | Conference in Algebraic Topology, Warsaw University, Warsaw, Poland

INVITED TALKS

- Jul 2018 | *Liftability of Frobenius and images of toric varieties*, Conference Witt Vectors, Deformations and Absolute Geometry, University of Vermont
- Dec 2017 | *$K(\pi, 1)$ spaces and wild ramification*, Conference Géométrie algébrique et géométrie complexe, CIRM Luminy
- Nov 2017 | *Liftability of Frobenius and images of toric varieties*, EPFL
- Nov 2017 | *$K(\pi, 1)$ spaces and wild ramification*, IMPAN, Warsaw
- Sep 2017 | *Log geometry, monodromy, and Betti realization of varieties defined by formal power series*, Workshop Étale and motivic homotopy theory, Universität Heidelberg
- Aug 2017 | *$K(\pi, 1)$ spaces and wild ramification*, Conference Algebraic K -theory and Arithmetic, Banach Center, Bedlewo
- Jul 2017 | *Log geometry, monodromy, and Betti realization of varieties defined by formal power series*, Workshop on Higgs bundles, K3 surfaces and moduli, HU Berlin
- Jul 2017 | *$K(\pi, 1)$ spaces and wild ramification*, Universität Frankfurt
- Jun 2017 | *$K(\pi, 1)$ spaces and wild ramification*, Universität Heidelberg
- Jun 2017 | *$K(\pi, 1)$ spaces and wild ramification*, ENS Lyon
- May 2017 | *$K(\pi, 1)$ spaces and wild ramification*, Universität Zürich
- May 2017 | *Images of toric varieties and liftability of the Frobenius morphism*, Workshop Beyond Toric Geometry, CMO Oaxaca
- Apr 2017 | *$K(\pi, 1)$ spaces and wild ramification*, Jussieu
- Apr 2017 | *$K(\pi, 1)$ spaces and wild ramification*, ENS Paris
- Feb 2017 | *$K(\pi, 1)$ spaces and wild ramification*, Universität Münster
- Jan 2017 | *Canonical liftings of ordinary Calabi–Yau varieties*, MATRIX, Creswick, Australia
- Dec 2016 | *$K(\pi, 1)$ spaces and wild ramification*, IHES
- Sep 2016 | *Deformations and Degenerations in Algebraic and Arithmetic Geometry*, plenary address at the 7th Forum of the Polish Mathematical Society, Olsztyn
- Feb 2015 | *F -split varieties with a diagonalizable group action*, University of Tokyo
- Feb 2015 | *$K(\pi, 1)$ spaces and wild ramification*, University of Tokyo
- Dec 2014 | *$K(\pi, 1)$ spaces and wild ramification*, Berkeley Number Theory Seminar
- Jun 2014 | *$K(\pi, 1)$ neighborhoods and comparison theorems*, IHES
- Mar 2014 | *$K(\pi, 1)$ spaces in algebraic geometry*, Stanford Special Algebraic Geometry Seminar
- Nov 2013 | *Frobenius splitting of toric varieties and matroids*, Algebra Seminar at University College Dublin
- May 2013 | *A characterization of toric varieties in characteristic p* , Frobenius Singularity Day, MSRI
- Sep 2012 | *A characterization of toric varieties in characteristic p* , Berkeley Algebraic Geometry and Commutative Algebra Seminar

PRIZES AND SCHOLARSHIPS

2016	Kazimierz Kuratowski Prize
2016	FNP START award
2015	Kenneth Ribet and Lisa Goldberg Award in Algebra
2014	UC Berkeley Outstanding Graduate Student Instructor Award
2011–2014	International Fulbright Science and Technology Award
2010	2nd prize, Polish Mathematical Society Józef Marcinkiewicz Memorial Prize for Best Student Paper in Mathematics
2009	First Prize, 16th International Mathematics Competition, Budapest, Hungary
2009	9th place, 19th Vojtech Jarník Annual International Mathematical Competition, Ostrava, Czech Republic
2008	First Prize, 15th International Mathematics Competition, Blagoevgrad, Bulgaria
2007	First Prize, 14th International Mathematics Competition, Blagoevgrad, Bulgaria
2007	11th place, 17th Vojtech Jarník Annual International Mathematical Competition, Ostrava, Czech Republic
2006	Second Prize, 13th International Mathematics Competition, Odessa, Ukraine
2005	Bronze Medal, 46th International Mathematical Olympiad, Merida, Mexico

TEACHING

2012–2015	Teaching for the Berkeley, Stanford, and Marin Math Circles,
Fall 2014	Math 202A (Graduate Level Topology and Analysis) TA
Fall 2013	Math 32 (Precalculus) TA
Spring 2013	Assistant for the Berkeley Math Circle
Fall 2012	Math H1B (Honors Calculus) TA
Spring 2012	Math 1A (Calculus) TA

OTHER PROJECTS

2016–	Reviewer for MathSciNet
2011–2015	Reviewer for Zentralblatt
2013–2014	Member of the problem selection committee for the Bay Area Math Olympiad
2011–2014	Organizer of the UC Berkeley Student Algebraic Geometry Seminar
2011–2013	Organizer of two subsequent (XX and XXI) editions of the Géométrie Algébrique en Liberté (GAeL) conference
2009–2010	English translation of J.-P. Serre's <i>Faisceaux algébriques cohérents</i>
2007–2008	Member of Polish Mathematical Olympiad's problem selection committee,
2009–	Member of Polish Mathematical Olympiad's Warsaw regional committee,
2008–	Co-organizer of three subsequent editions of Scientific Summer Workshops , aimed at exceptional high-school students interested in mathematics, computer science and physics
2008–2009	Lead programmer of Dendrarium , computational linguistics software for analysing parse trees