Pavel Čoupek *Curriculum Vitae*

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Education

2016 – present	**Purdue University**, West Lafayette, IN, USA	**Ph.D.** degree in Mathematics (expected May 2022)
	Advisor: Tong Liu	
	Thesis: Crystalline condition for A_{inf}–cohomology and ramification bounds	
2013 – 2016	**Charles University**, Prague, Czech Republic	**Master's** degree in Mathematics (Summa cum Laude)
	Advisor: Jan Šťovíček	
	Thesis: Tilting Theory for Quasicoherent Sheaves	
2015 – 2016	**Georg–August University**, Göttingen, Germany	Erasmus exchange program
2010 – 2013	**Charles University**, Prague, Czech Republic	**Bachelor's** degree in Mathematics
	Advisor: Jan Šaroch	
	Thesis: Quasi–Euclidean Domains	

Research interests

Arithmetic and algebraic geometry, p–adic Hodge theory and p–adic Galois representations, homological algebra.

Publications and Preprints

[3] **Crystalline condition for A_{inf}–cohomology and ramification bounds.**
arXiv preprint, 2021   https://arxiv.org/abs/2108.03833

[2] **Geometric quadratic Chabauty over number fields.**
with D. Lilienfeldt, L. X. Xiao and Z. Yao; submitted, 2021   https://arxiv.org/abs/2108.05235

[1] **Cotilting sheaves on Noetherian schemes.**
with J. Šťovíček; Mathematische Zeitschrift **296**, 275–312 (2020)

Awards and Grants

2022 Spring	**Bilsland Dissertation Fellowship**	
	Thesis research fellowship; Purdue University	
2021 Fall	**Cowen Exceptional Promise Award**	
	Awarded to one PhD Mathematics student per year; Purdue University	
2019 – 2021	**Summer Research Grant**	
	Support for summer semesters 2019, 2020, 2021; Purdue University	
2019	**International Travel Award**	
	Purdue University	
2017	**MacLane Award**	
	Awarded to 1 of approx. 25 incoming Mathematics PhD students; Purdue University	
2016 – 2020	**Ross Fellowship**	
	Purdue University Graduate School Fellowship	
2016	**SVOČ Competition** – **first prize** in category Algebra, Geometry and Number Theory	
	Competition for university students in math. research; Czech Republic and Slovakia	

2015 – 2016	**Erasmus+ Scholarship** Erasmus exchange program
2014/2015, 2013/2014	**Merit Scholarship** Charles University scholarship for students with 10% best grades

Talks – Research

2022 Apr 7	**Ramification bounds for mod p étale cohomology via prismatic cohomology.** Joint Mathematics Meetings 2022, via Zoom.
2022 Mar 9	**Constructing vector–valued modular forms.** Arizona Winter School, University of Arizona, Tucson AZ USA, project presentation.
2022 Feb 1	**Crystalline condition for A_{inf}–cohomology and ramification bounds.** Algebra and Number Theory Seminar, University of Arizona, via Zoom.
2021 Nov 6	**Ramification bounds for mod p étale cohomology via prismatic cohomology.** Graduate Research Day, Purdue University, West Lafayette, IN USA.
2021 Oct 24	**Ramification bounds for mod p étale cohomology via prismatic cohomology.** Upstate Number Theory Conference, Union College, Schenectady, NY USA.
2021 Oct 2	**Ramification bounds for mod p étale cohomology via prismatic cohomology.** Maine–Québec Number Theory Conference, University of Maine, via Zoom.
2021 Sep 25	**Ramification bounds for mod p étale cohomology via prismatic cohomology.** Palmetto Joint Arithmetic, Modularity, and Analysis Series, Clemson University, via Zoom.
2021 Aug 11	**Crystalline condition for A_{inf}–cohomology and ramification bounds.** Mini–Midwest Arithmetic Geometry and Number Theory Conference, poster session online.
2020 Dec 15	**Geometric quadratic Chabauty over number fields.** Number Theory Seminar, Charles University, via Zoom.
2020 Oct 7	**Geometric quadratic Chabauty over number fields.** Arithmetic and Algebraic Geometry Seminar, Purdue University, via Zoom.
2020 Mar 11	**Geometric quadratic Chabauty over number fields.** Arizona Winter School, University of Arizona, Tucson AZ USA, project presentation.
2019 Mar 6	**Ln–formally étale does not imply weakly étale.** Arizona Winter School, University of Arizona, Tucson AZ USA, project presentation.
2017 May 22	**1–cotilting sheaves on curves.** Algebra Seminar, Charles University, Prague, Czech Republic.
2016 May 23	**1–cotilting sheaves on a Noetherian scheme.** Algebra Seminar, Charles University, Prague, Czech Republic.

Talks – Expository

2021 Sep 23, 30	**Group schemes (I & II).** Eisenstein Ideal Learning Seminar, Purdue University, via Zoom.
2020 Sep 30	**Perverse t–structures and perverse sheaves.** Mixed Hodge Modules Seminar, Purdue University, via Zoom.
2020 Feb 12, 19	**Holonomic D–modules (I & II).** Algebraic Geometry Learning Seminar, Purdue University, West Lafayette, IN USA.
2019 Oct 10	**Prisms.** Arithmetic Geometry Learning Seminar, Purdue University, West Lafayette, IN USA.
2019 Sep 5, 19	**Delta rings (I & II).** Arithmetic Geometry Learning Seminar, Purdue University, West Lafayette, IN USA.
2018 Nov 28	**Quiver algebras.** Student Colloquium, Purdue University, West Lafayette, IN USA.

2018 Sep 5	**Grothendieck topologies and sheaf cohomology.**	
	Arithmetic Geometry learning seminar, Purdue University, West Lafayette, IN USA.	
2018 May 22	**Regular primes and Bernoulli numbers.**	
	Number Theory Seminar, Charles University, Prague, Czech Republic.	
2018 Apr 5	**Algebraicity of complex tori.**	
	Intersection Theory, Purdue University, West Lafayette, IN USA.	
2018 Feb 7	**Existence of Lefschetz pencils.**	
	Arithmetic Geometry Learning Seminar, Purdue University, West Lafayette, IN USA.	
2017 Mar 1	**Nonsingular toric varieties.**	
	Informal Algebraic Geometry Seminar, Purdue University, West Lafayette, IN USA.	
2016 Jul 6	**Mathematics in natural science.**	
	Summer School of Philosophy; Dub nad Moravou, Czech Republic.	
2016 Apr 26	**Quasi–Euclidean domains.**	
	Number Theory Seminar, Charles University, Prague, Czech Republic.	
2014 Nov 23	**Group cohomology and wallpaper groups.**	
	Autumn School of Algebra; Libuň, Czech Republic.	
2012 Jul 5	**Informal introduction to set theory.**	
	Summer School of Philosophy; Dub nad Moravou, Czech Republic.	
	various informal talks at Charles University, University of Göttingen and Purdue University	

Teaching experience

Purdue University:

2021	Fall	**Applied Calculus 1**	lecture, 2 sections
2021	Spring	**Applied Calculus 2**	lecture, 2 sections
2020	Fall	**Applied Calculus 2**	IMPACT class
2020	Spring	**Linear Algebra and Diff. Equations**	recitation, 2 sections
2019	Fall	**Linear Algebra and Diff. Equations**	recitation, 2 sections
2019	Spring	**Calculus 3**	recitation, 3 sections
2018	Fall	**Discrete Mathematics**	homework grading
2018	Fall	**Representation Theory of Finite Groups**	homework grading
2018	Spring	**Calculus 2**	recitation, 3 sections
2016	Fall	**Ordinary Differential Equations**	homework grading

Charles University:

2016	Spring	**Number Theory and RSA**	recitation, 1 section
2016	Spring	**Linear Algebra and Geometry 2**	homework grading
2015	Spring	**Linear Algebra and Geometry 2**	recitation, 2 sections
2014	Fall	**Introduction to Group Theory**	recitation, 1 section

Organizing and Service

- **Mentor** in AWM Purdue chapter Math Mentor program — academic year 2021/2022
- **Organizer** of Learning Seminar on Perfectoid Spaces — Summer & Fall 2019, Purdue University
- **Organizer** of Learning Seminar on ∞-Categories — Fall 2018, Spring & Fall 2019, Purdue University
- **Organizer** of Learning Seminar on Scheme Theory — Spring 2015, Spring 2016, Charles University
- (Minor) **contributor** to the Stacks Project — `https://stacks.math.columbia.edu`

Attended conferences

2022 Apr 6–9	**Joint Mathematics Meetings,** via Zoom.
2022 Mar 5–9	**Arizona Winter School: Automorphic forms beyond GL_2,** University of Arizona, Tucson, AZ USA.
2021 Nov 6	**Graduate Research Day,** Purdue University, West Lafayette, IN USA.
2021 Oct 23–24	**Upstate Number Theory Conference,** Union College, Schenectady, NY USA.
2021 Oct 2–3	**Maine–Québec Number Theory Conference,** University of Maine, via Zoom.
2021 Sep 25–26	**Palmetto Joint Arithmetic, Modularity, and Analysis Series III,** via Zoom.
2021 Aug 11	**Mini–Midwest Arithmetic Geometry and Number Theory Conference,** via Zoom.
2021 Jun 7–18	**Sparsity of Algebraic Points,** MSRI Virtual School (online).
2021 May 10–12	**Rational Points and Galois Representations,** University of Pittsburgh, via Zoom.
2020 Oct 19–23	**Workshop on Arithmetic quotients of locally symmetric spaces and their cohomology,** Centre de Recherches Mathématiques, via Zoom.
2020 Summer	**Algebraic and Tropical Online Meetings,** summer school (online).
2020 Jun 20	**Chicago Number Theory Day,** University of Illinois at Chicago, via Zoom.
2020 Jun 12–14	**Connecticut Summer School in Number Theory** (conference part), University of Connecticut, via Zoom.
2020 May 29–31	**Cross Atlantic Representation Theory and Other topics Online,** University of Michigan, via Zoom.
2020 May 2	**Midwest Algebraic Geometry Graduate Conference,** University of Illinois at Chicago, via Zoom.
2020 Apr 25	**Front Range Number Theory Day,** Colorado State University, via Zoom.
2020 Apr 18–19	**Western Algebraic Geometry online,** University of Washington, via Zoom.
2020 Mar 7–11	**Arizona Winter School: Nonabelian Chabauty,** University of Arizona, Tucson, AZ USA.
2019 Jul 8–12	**Perfectoids,** University of Rennes 2, Rennes, France.
2019 Mar 2–6	**Arizona Winter School: Topology and Arithmetic,** University of Arizona, Tucson, AZ USA.
2018 Nov 2–4	**Pop–up Conference in Number Theory,** University of Illinois Chicago, Chicago, IL USA.
2018 Mar 3–7	**Arizona Winter School: Iwasawa Theory,** University of Arizona, Tucson, AZ USA.
2017 Oct 20–22	**Paul J. Sally Jr. Midwest Representation Theory Conference,** Purdue University, West Lafayette, IN USA.
2015 Nov 25	**Workshop on Diophantine Approximation,** Georg-August University, Göttingen, Germany.
2015 Oct 21–23	**Panorama of Mathematics,** Hausdorff Center for Mathematics, Bonn, Germany.
2015 Sep 1–4	**Some Trends in Algebra 2015,** Charles University, Prague, Czech Republic.
2014 Nov 21–24	**Autumn School of Algebra,** Libuň, Czech Republic.
2014 Sep 7–13	**37th Autumn School in Algebraic Geometry,** Łukęcin, Poland.
2014 Aug 25–30	**Summer School 2014 of the IRTG "Moduli and Automorphic Forms",** Alfréd Rényi Institute of Mathematics, Budapest, Hungary.

Languages

Czech (native), **English** (fluent), **German** (good command), **French** (basic), **Russian** (basic)