

S I M I O N F I L I P

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CITIZENSHIP: REPUBLIC OF MOLDOVA, ROMANIA
US PERMANENT RESIDENT

EMPLOYMENT & EDUCATION

Professor	2023 – present	University of Chicago
Associate Professor	2019 – 2023	
PostDoc	2016 – 2019	CLAY RESEARCH FELLOW (2016–2021) Institute for Advanced Study (2018–2019) Harvard University, Junior Fellow (2016–2018)
PhD	2010 – 2016	University of Chicago , ADVISOR: ALEX ESKIN
MA	2009 – 2010	University of Cambridge, UK PART III OF THE MATHEMATICAL TRIPOS <i>with Distinction</i>
AB	2005 – 2009	Princeton University , AB IN MATHEMATICS

PAPERS & PREPRINTS

Published or Accepted

- *Gaps in the support of canonical currents on projective K3 surfaces* (with V. Tosatti)
[Journal of Geometric Analysis](#) (2024), vol. 34, article nr. 76
- *A cyclotomic family of thin hypergeometric monodromy groups in $\mathrm{Sp}_4(\mathbb{R})$* (with C. Fougeron)
[Geometriae Dedicata](#) [arXiv:2106.09181](https://arxiv.org/abs/2106.09181) (to appear)
- *Translation Surfaces: Dynamics and Hodge Theory*
[EMS Surveys in the Mathematical Sciences](#) (to appear)
- *Global properties of some weight 3 variations of Hodge structure*
[Proceedings of the 8th European Congress of Mathematicians](#) (2023), 553-568
- *Asymptotic shifting numbers in triangulated categories* (with Y.-W. Fan)
[Advances in Mathematics](#) (2023) vol. 428
- *Canonical currents and heights for K3 surfaces* (with V. Tosatti)
[Cambridge Journal of Mathematics](#) (2023), vol. 11(3), pp. 699 – 794
- *An introduction to K3 surfaces and their dynamics*
[Panoramas et Synthèses](#) (2022) Teichmüller theory and dynamics, 1-43
- *Kummer rigidity for K3 surface automorphisms via Ricci-flat metrics* (with V. Tosatti)
[American Journal of Mathematics](#) (2021) vol. 143(5), pp. 1431–1462
- *On pseudo-Anosov autoequivalences* (with Y.-W. Fan, F. Haiden, L. Katzarkov, Y. Liu)
[Advances in Mathematics](#) (2021) vol. 384
- *Geometry and dynamics on Riemann and K3 surfaces*
[Eur. Math. Soc. Mag.](#) (2021) vol. 119, pp. 17–22
- *Counting special Lagrangian fibrations in twistor families of K3 surfaces*
[Annales Scientifiques de l'École Normale Supérieure](#) (2020) vol. 53(3), pp. 713–750
- *Tropical dynamics of area-preserving maps*
[Journal of Modern Dynamics \(JMD\)](#) (2019) vol. 14, pp. 179–226

- *Notes on the Multiplicative Ergodic Theorem*
Ergodic Theory and Dynamical Systems (ETDS) (2019) vol. 39(5), pp. 1153–1189
- *Smooth and Rough Positive Currents* (with V. Tosatti)
Annales de l'Institut Fourier (AIF) (2018) vol. 68(7), pp. 2981–2999, J.-P. Demailly Anniversary Volume
- *The Algebraic Hull of the Kontsevich–Zorich Cocycle* (with A. Eskin and A. Wright)
Annals of Mathematics (2018) vol. 188, pp. 281–313
- *Quaternionic covers and monodromy of the Kontsevich–Zorich cocycle in orthogonal groups* (with G. Forni and C. Matheus)
Journal of the European Mathematical Society (JEMS) (2018) vol. 20, pp. 165–198
- *Zero Lyapunov exponents and monodromy of the Kontsevich–Zorich cocycle*
Duke Math Journal (2017) vol. 166, pp. 657–706
- *Families of K3 surfaces and Lyapunov exponents*
Israel Journal of Mathematics (2018) vol. 226, pp. 29–69
- *On Hölder-continuity of Oseledets subspaces* (with V. Araujo and A. Bufetov)
Journal of the London Mathematical Society (JLMS) (2016) vol. 93, pp. 194–218
- *Splitting mixed Hodge structures over affine invariant manifolds*
Annals of Mathematics (2016) vol. 183, pp. 681–713
- *Semisimplicity and rigidity of the Kontsevich–Zorich cocycle*
Inventiones Mathematicae (2016) vol. 205, pp. 617–670

Preprints (submitted)

- *Uniformization of some weight 3 variations of Hodge structure, Anosov representations, and Lyapunov exponents*
arXiv:2110.07533
- The volume of a divisor and cusp excursions of geodesics in hyperbolic manifolds (with J. Lesieutre, V. Tosatti)
arXiv:2312.01012

AWARDS

- **Frontiers of Science Award** (2023, inaugural) shared with Alex Eskin & Alex Wright
- **EMS Prize** (2020) European Mathematical Society
- **1st Dynamical Systems Prize for young mathematicians** (2016)
(subsequently renamed the Michael Brin Dynamical Systems Prize for young mathematicians)
- **Clay Research Fellowship** (2016-2021) Clay Mathematics Institute
- **Junior Fellowship** (2016-2019) Society of Fellows, Harvard University
- **NSF Grants** DMS-2005470 (2020-2023), DMS-2305394 (2023-2026)
- Graduate School (*University of Chicago*):
Harper Dissertation Fellowship (2015) The highest university honor for final year PhD students
Izaak Wirszup memorial prize (2014) For excellence in research
Lawrence and Josephine Graves Teaching Prize (2014) For effective and responsible teaching
McCormick Scholarship (2010-2012) For incoming graduate students
- Before Graduate School:
University of Cambridge: **Trinity College Mathematics Studentship** (2009-2010)
Princeton University: **George B. Wood Junior Legacy prize** (2009) To a senior in recognition of exceptional achievement during the junior year; **Andrew H. Brown Prize** (2008) Mathematics Department, for exceptional work during the junior year; **Shapiro Prize for Academic Excellence** (2007) For outstanding work during the sophomore year

 SERVICE

REFEREEING & QUICK OPINION	Inventiones Mathematicae, JAMS, Acta Mathematica, Duke Math Journal, Crelle, GAFA, Geometry & Topology, Compositio Mathematica, IMRN, Journal of Modern Dynamics, Ergodic Theory & Dynamical Systems, Transactions of the AMS, Israel Journal of Math, Journal de l'École Polytechnique, Conformal Geometry & Dynamics, Archiv der Matematik, Experimental Mathematics, New York Journal of Math, SIGMA
CONFERENCE Organization	<i>Group Actions with Hyperbolicity and Measure Rigidity</i> 27–31 May 2024, IHP Paris <i>Workshop on Finiteness Theorems in Arithmetic and Dynamics</i> , 17–21 October 2022, Lake Como (Italy) <i>Ergodic geometry, number theory and Margulis legacy: the next generation</i> , 12–15 June 2022, Chicago (US)
SEMINAR ORGANIZATION	<i>BiSTRO seminar</i> via Zoom, with C. Matheus, C. McMullen, and M. Möller; Weekly (April 2020 – June 2021) then bimonthly (2022)
DEPARTMENTAL SERVICE	Graduate Admissions (2019-present, co-chair 2023-present), Colloquium Committee (2020-present), Junior Hiring (2021-present)
PHD STUDENTS	Seung uk Jang (2023, co-advised with A. Eskin), Polina Baron (in progress)
MENTORING	REU at UChicago, research talk for undergraduates, summer 2021; Directed Reading Program (DRP) for undergraduates, UChicago, Winter 2014; Upward Bound Program for high school students, UChicago, Fall 2014; Panelist, “Teaching in the College” workshop, Fall 2014
GRANT REVIEWS	ERC Grants (European Union), FONDECYT (Chile), National Science Center (Poland)

 TEACHING

UCHICAGO	UNDERGRADUATE: Complex Analysis, Algebraic Geometry, Ordinary Differential Equations, Analysis in \mathbb{R}^n , Linear Algebra, Multivariable Calculus, Honors Calculus (Moore's Method, IBL) GRADUATE: Dynamics and Rigidity LAWRENCE AND JOSEPHINE GRAVES TEACHING PRIZE (2014)
HARVARD	GRADUATE: Dynamics and Rigidity

 INVITED TALKS AND LECTURE SERIES

Colloquia

2022	UTennessee (via Zoom), Duke
2021	Tata Institute (TIFR) (via Zoom)
2019	UC Berkeley ($\times 2$), UChicago, Harvard, Stanford
2018	Northwestern, Caltech, Yale
2017	Univ. of Indiana (Bloomington), Tufts, Rice

Schools and Lecture Series

2022	UIC, Chicago, USA (3 lectures), Geometric Structures (re)United
2019	Beijing, China (8 lectures), Summer School on Modern Dynamics
2018	Grenoble, France (3 lectures), Summer School on Teichmüller theory
2016	ICTP, Trieste, Italy (4 lectures), Summer School on Geometry and Dynamics Moscow, Russia (3 lectures), School on Hyperbolicity and Dynamics
2015	CIRM, Luminy, France (3 lectures), Summer School “Flat surfaces” Ilhabela, Brazil (3 lectures), Summer School “Holomorphic Dynamics”

Conference talks

2023	Ascona, Switzerland, Conference in honor of Ursula Hamenstädt
2021	Oberwolfach, Germany, Workshop “Enumerative Geometry of Surfaces” European Congress of Mathematics, Prize Winner lecture

- ICERM, Providence, USA, Workshop “Computational Aspects of Discrete Subgroups of Lie Groups”
 Workshop in Dynamical Systems and Related Topics, Penn State
- 2020 BIRS workshop (Banff) Arithmetic Dynamics and Connections
- 2019 MSRI, Holomorphic differentials workshop
 Cetraro, Italy, Conference in honor of Yves Benoist
 Schloss Elmau, Germany, Simons Symposium: Algebraic, Complex and Arithmetic Dynamics
- 2018 Fields Institute, Canada, Symposium in memory of Maryam Mirzakhani
 Fields Institute, Canada, Translation Surfaces Workshop
 Oberwolfach, Germany, Workshop “Flat Surfaces and Algebraic Curves”
 UMaryland, Bill Veech Memorial Conference
- 2017 UMaryland, Maryland Analysis & Geometry Atelier
 Stonybrook, Hodge Theory, Moduli & Representation Theory
 Stanford, GEAR Senior Retreat
 Fields Institute, Canada, Workshop on Algebraic Varieties
 CIRM, Luminy, France, Conference “Espace de Teichmüller”
- 2016 ICERM, Providence, USA, Workshop “Cycles on Moduli Spaces, GIT, and Dynamics”
 Paris, France, Conference in honor of G. Margulis, 70 years anniversary
 Oaxaca, Mexico, Workshop “Flat Surfaces and Dynamics in Moduli Space”
- 2015 Oxford, UK, Clay Workshop “Geometry and Dynamics on Moduli Spaces”
 CIRM, Luminy, France, Conference “Dynamics and Geometry in Teichmüller Space”
 MPIM, Bonn, Germany, Arbeitstagung
 Ilhabela, Brazil, Conference “Hyperbolicity in Algebraic Geometry”
- 2014 Bordeaux, France, Conference “Paroles aux jeunes chercheurs”
 Daejong, South Korea, ICM satellite conference “Geometry and Groups”
 Oberwolfach, Germany, Workshop “Flat Surfaces and Dynamics on Moduli Space”
- 2013 ICERM, Providence, USA, Workshop on Geometric Structures in Dynamics
 Ventotene, Italy, Conference on Geometric and Analytic Group Theory
 Morelia, Mexico, International Conference on Surfaces of Infinite Type
- Seminar talks**
- 2023 IHP Paris Séminaire “Surfaces Plates”, IHES Séminaire “Géométrie et groupes discrets”
- 2022 UChicago Dynamics Seminar
- 2021 (all via Zoom) Orsay Seminar “Opérateurs de Dirac”, Symplectic Zoominar, U. Saarlandes Saarbrücken
 Oberseminar Algebra und Zahlentheorie, Heidelberg Geometry Seminar, Yale Dynamics Seminar,
 UChicago Algebraic Geometry Seminar, Tel Aviv University Geometry & Dynamics Seminar
- 2019 UC Berkeley Differential Geometry Seminar, IHP Paris Séminaire “Surfaces Plates”
- 2018 Univ. of Maryland Dynamics Seminar, IAS Princeton Informal Dynamics Seminar, IHP Paris Séminaire
 “Surfaces Plates”, Harvard Informal Geometry and Dynamics Seminar, Northeastern U. Geometry,
 Physics, and Representation Theory Seminar
- 2017 IAS Princeton Analysis seminar, Indiana U. Geometry & Dynamics seminar, Columbia U. Symplectic
 Geometry & Gauge Theory Seminar, IHP Paris Séminaire “Surfaces Plates”, Princeton U. Ergodic
 Theory Seminar, IAS Princeton Analysis and Mathematical Physics Seminar, Stonybrook U. Algebraic
 Geometry Seminar, Northwestern U. Dynamics Seminar
- 2016 Boston College Geometry & Topology Seminar, Harvard Informal Geometry and Dynamics Seminar,
 Yale Geometry & Topology Seminar, UIUC GEAR Seminar, Harvard/MIT Algebraic Geometry Seminar,
 Caltech Geometry & Topology Seminar, Univ. of Michigan Geometry Seminar, Marseille France
 Séminaire Teich, Orsay France Geometry, Topology & Dynamics Seminar, Cambridge UK Geometry
 and Topology Seminar, IHP Paris Séminaire “Surfaces Plates”, Grenoble France Séminaire d’Algèbre et
 Géométries
- 2015 MSRI Berkeley Homogeneous Dynamics Program seminar, Stanford Algebraic Geometry seminar,
 Northwestern U. Dynamical Systems seminar, Harvard Informal Geometry and Dynamics seminar,
 Courant NYU Algebraic Geometry seminar, UChicago Number Theory seminar, Penn State Dynamical
 Systems seminar
- 2014 Jussieu Paris France Séminaire de Théorie Ergodique, Grenoble France Séminaire d’Algèbre et Géométries,
 Marseille France Séminaire Teich, IHP Paris Séminaire “Surfaces Plates”, Univ. of Maryland Dynamical
 Systems seminar
- 2013 Univ. of Utah Max Dehn seminar, UIUC Ergodic Theory seminar