

## CURRICULUM VITAE

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Born on 25 March 1989 in Moscow, Russia  
Nationality: French and Russian

### Career path

**2018–** Research Fellow at Higher School of Economics (Moscow)  
**2015–2018** Gibbs Assistant Professor at university of Yale  
**2012–2015** Graduate student at Université de Paris-Sud  
**2008–2012** Student of the Ecole Normale Supérieure, Paris  
**2006–2008** “Classes préparatoires” MPSI and MP\* in lycée Louis-le-Grand, in Paris

### Education

**2011–2014** PhD with Yves Benoist at Université de Paris-Sud, on the subject “Tilings of affine space”. Defended on 12 November 2014.  
**2011** Master’s degree in mathematics  
**Sep–Dec ’10** Internship in the Independent University, in Moscow  
**2010** “Agrégation externe de mathématiques”: competitive examination for high school and university teaching positions; ranked 28th  
**2009** “Maîtrise” (one-year graduate degree) in mathematics  
“Licence” (Bachelor’s degree) in mathematics  
**2006** “Baccalauréat S” (high school graduation) summa cum laude in lycée Clémenceau, in Nantes

### Publications and preprints

**2018** Smilga I. “Construction of Milnorian representations”, to appear in *Geometriae Dedicata*; available at arXiv:1802.07193  
**2016** Smilga I. “Proper affine actions: a sufficient criterion”, submitted; available at arXiv:1612.08942  
**2018** Le Floch B., Smilga I. “Action of Weyl group on zero-weight space”, *Comptes Rendus Mathématique* **356** (8), 852–858  
**2018** Smilga I. “Proper affine actions in non-swinging representations”, *Groups, Geometry and Dynamics* **12** (2), 449–528  
**2016** Smilga I. “Proper affine actions on semisimple Lie algebras”, *Annales de l’Institut Fourier* **66** (2), 785–831  
**2014** Smilga I. “Fundamental domains for properly discontinuous affine groups”, *Geometriae Dedicata* **171**, 203–229  
**2012** Smilga I. “Harmonic functions on the Sierpinski triangle”, arXiv:1205.4442

## Talks and posters at conferences

- Jan 2019 *Milnorian and non-Milnorian representations*  
Conference “Geometric Structures in Nice”
- Nov 2018 Poster at the “Real and Complex Dynamical Systems” conference  
at the **Independent University of Moscow**
- Mar 2016 *Free affine groups acting properly discontinuously*  
Special Session on Homogeneous Dynamics in AMS sectional meeting  
in **Stony Brook University** (New York)
- Feb 2015 Poster at the “Zariski-Dense Subgroups” workshop  
at the **IPAM (Los Angeles)**
- Nov 2014 *New counterexamples to a Milnor conjecture*  
Conference “Parole aux jeunes chercheurs en géométrie et dynamique”  
in **Bordeaux**

## Other invited talks

- Dec 2018 *Dejstvie grupy Weylja na vesovom prostranstve nulevogo vesa*  
Seminar of the laboratory of Algebraic Geometry at the **Higher School of Economics (Moscow)**
- Nov 2018 *Milnorovy i nemilnorovy predstavlenija*  
Seminar “Lie groups and invariant theory” at the **Moscow State University**
- Sep 2018 *Dejstvie grupy Weylja na vesovom prostranstve nulevogo vesa*  
Seminar “Lie groups and invariant theory” at the **Moscow State University**
- Jun 2018 *Milnorovy i nemilnorovy predstavlenija*  
Seminar of the laboratory of Algebraic Geometry at the **Higher School of Economics (Moscow)**
- Jun 2018 *Ping-pong s tennisnym mjachom*  
Seminar “Geometric Structures on Manifolds” at the **Higher School of Economics (Moscow)**
- Jun 2018 *Milnorian and non-Milnorian representations*  
Geometry and Discrete Groups seminar at the **Institut des Hautes Études Scientifiques**
- Mar 2018 *Jouer au ping-pong avec une balle de tennis*  
Dynamic Geometry seminar in **Lille**
- Mar 2018 *Représentations milnoriennes et non-milnoriennes*  
So-called “Teich” seminar in **Marseille**
- Mar 2018 *Représentations milnoriennes et non-milnoriennes*  
Spectral Theory and Geometry seminar in **Grenoble**
- Mar 2018 *Représentations milnoriennes et non-milnoriennes*  
Geometry, Analysis and Dynamics seminar in **Nice**
- Sep 2017 *Generalized Schottky groups*  
Informal geometry learning group at **Yale University**
- Apr 2017 *Groupes affines libres agissant proprement*  
Geometry seminar in **Bordeaux**
- Mar 2017 *Groupes affines libres agissant proprement*  
Ergodic Theory seminar in **Rennes**
- Mar 2017 *Groupes affines libres agissant proprement*  
Dynamic Geometry seminar in **Lille**
- Mar 2017 *Groupes affines discrets agissant proprement*  
Geometry and Applications seminar in **Strasbourg**
- Mar 2017 *Groupes affines libres agissant proprement*  
Geometries seminar in **Lyon**

- Mar 2017**     *Action of Weyl group on zero weight space*  
 Lie Groups and Representation Theory seminar at **University of Maryland**
- Mar 2017**     *Free affine groups acting properly discontinuously*  
 Groups and Dynamics seminar at **UT Austin**
- Jan 2017**     *Free affine groups acting properly discontinuously*  
 Informal talk in **Sherbrooke** (Quebec)
- Dec 2016**     *Free affine groups acting properly discontinuously*  
 “Group Actions and Dynamics” seminar at **Yale University**
- Aug 2016**     *Free affine groups acting properly discontinuously*  
 Hauptseminar Geometrie in **Heidelberg** (Germany)
- Jul 2016**     *Groupes affines libres discrets agissant proprement*  
 Dynamical Systems, Analysis and Geometry seminar in **Avignon**
- May 2015**     *New counterexamples to a Milnor conjecture*  
 Hauptseminar Geometrie in **Heidelberg** (Germany)
- Feb 2015**     *Fundamental domains for affine Schottky groups preserving a quadratic form of signature  $(2n+2, 2n+1)$*   
 “Group Actions and Dynamics” seminar at **Yale University**
- Jan 2015**     *Affine tilings and Margulis invariants*  
 “Groups and Dynamics” seminar at **Einstein Institute of Mathematics (Jerusalem)**
- Jan 2015**     *Pavages affines et invariants de Margulis*  
 Dynamical Systems, Analysis and Geometry seminar in **Avignon**
- Jan 2015**     *Domaines fondamentaux pour les groupes de Schottky affines préservant une forme quadratique de signature  $(2n+2, 2n+1)$*   
 So-called “Teich” seminar in **Marseille**
- Jan 2015**     *Pavages affines et invariants de Margulis*  
 Analysis and Geometry seminar at **UPMC (Paris VI)**
- Oct 2014**     *New counterexamples to the Milnor conjecture*  
 Geometric Group Theory workshop in **Orsay**
- May 2014**     *New counterexamples to the Milnor conjecture*  
 Geometry seminar in **Nantes**
- Apr 2014**     *Counterexamples to the Milnor conjecture*  
 PhD students’ seminar in **Orsay**
- Mar 2014**     *New counterexamples to the Milnor conjecture*  
 Dynamic Geometry seminar in **Lille**
- Oct 2013**     *Fundamental domains for affine Schottky groups preserving a quadratic form of signature  $(2n+2, 2n+1)$*   
 Ergodic Theory seminar in **Rennes**

## Conferences attended without talk and visits abroad

<b>Jun 2018</b>	Conference on pseudo-Riemannian geometry and Anosov representations, in Luxembourg
<b>May–Jul '18</b>	Visit to the IHES (France), 7 weeks
<b>Jul 2017</b>	Visit to the University of Heidelberg (Germany), 1 week
<b>Jun 2017</b>	Conference “Dynamique dans les variétés de représentations”, in Rennes (France)
<b>Jun 2017</b>	Conference “Propriétés géométriques et probabilistes des groupes infinis”, in Lille (France)
<b>Aug 2016</b>	Visit to the University of Heidelberg (Germany), 1 week
<b>Jun 2016</b>	Conference “Dynamics, Geometry and Number Theory” in honor of Gregory Margulis, at the IHP (Paris)
<b>Jun 2016</b>	Conference in honor of François Ledrappier, at Jussieu (Paris)
<b>Feb 2015</b>	Zariski-Dense Subgroups at the IPAM (Los Angeles)
<b>Feb 2015</b>	Introductory Workshop: Geometric and Arithmetic Aspects of Homogeneous Dynamics at the MSRI (Berkeley)
<b>Sep 2014</b>	Visit to the University of Bielefeld (Germany), 10 days
<b>Jan 2014</b>	3rd Young Geometric Group Theory Meeting at CIRM, in Luminy (France)
<b>Jan 2014</b>	Participation in the “Arithmetic & Dynamics” research group at the IIAS, in Jerusalem
<b>Aug–Sep '11</b>	Participation in the “Quantitative Geometry” program at the MSRI, in Berkeley
<b>2008, 2009</b>	Summer school “Contemporary mathematics” in Dubna (Russia)

## Teaching and outreach activities

<b>2017–2018</b>	Math 360 (Introduction to Lie Theory) at Yale Math 830 (Differential Geometry) at Yale Math 354 (Number Theory) at Yale
<b>2016–2017</b>	Math 380 (Modern Algebra) at Yale Topics course “Proper actions by discrete groups” at Yale Math 830 (Differential Geometry) at Yale
<b>2015–2016</b>	Math 360 (Introduction to Lie Theory) at Yale Math 354 (Number Theory) at Yale Math 830 (Differential Geometry) at Yale
<b>2013–2014</b>	“Maths en Jeans” workshop (initiation to mathematical research for high-school students)
<b>2012–2015</b>	Teaching assistant (running exercise sessions) in the University of Paris-Sud
<b>Mar–Jun '12</b>	Oral interrogations in mathematics in MPSI (first year of “Classes préparatoires”) in lycée Louis-le-Grand
<b>2008–2009</b>	Tutoring for high-school students in the “TalENS” association
<b>2007, 2010</b>	IMO training camp in Grésillon (France)

In 2007, I prepared a talk about regular polytopes in dimension 4 and above, for the Students' Mathematical Seminar in Louis-le-Grand. I repeated in on several occasions since (IMO training camp in Grésillon, Berkeley...)

## Grants, awards and distinctions

- 2017** NSF Research Grant: “Properly Discontinuous Actions on Homogeneous Spaces”, DMS-1709952, 2017–2019.
- 2009** Ranked 35th in the Prologon contest (a French coding contest)
- 2007** Silver medal at the International Physics Olympiad in Isfahan (Iran)
- 2006** Gold medal at the International Mathematics Olympiad in Ljubljana (Slovenia)  
Third prize at the “Concours Général” in physics  
Second “accessit” (runner-up) at the “Concours Général” in mathematics
- 2005** Bronze medal at the International Mathematics Olympiad in Mérida (Mexico)

## Community service

I am currently participating in the organization of the conference “Dynamics of Group Actions” in the honor of Yves Benoist, especially being responsible for its webpage: <http://dynamicsgroupactions.imj-prg.fr/>.

I translated into English the articles “Actions propres sur les espaces homogènes réductifs” and “Propriétés asymptotiques des groupes linéaires” by Yves Benoist; the translations can be consulted at arXiv:1802.07302 and arXiv:1811.06009.

## Various skills

- Language** French and Russian: mother tongues  
English: fluent  
Some knowledge of German, Italian and Spanish
- Computers** CamL, LaTeX, Mathematica, Sage  
Some experience with Linux  
Some knowledge of C and Lisp