

Curriculum Vitæ

1 Personal

- PAUPERT, Julien, H.
Born January 17, 1977, in Paris (France).
French citizen.
Married, two children.
- Current situation: Visiting Assistant Professor at Johns Hopkins University.
- Contact information:

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2 Education

- Ph.D. in Mathematics, november 2005.
Université Paris 6.
Advisor: Elisha Falbel.
Thesis: *Configurations of Lagrangians, fundamental domains, and discrete subgroups of $PU(2, 1)$.*
- “Maîtrise” (Master) in Mathematics, june 1999, mention Très Bien (Magna cum Laude). Université Paris 7.

3 Research

My research area is complex hyperbolic geometry, particularly the investigation of discrete groups of isometries of complex hyperbolic space. This space is one of the two occurrences (with real hyperbolic space) of a rank 1 symmetric space where Margulis' super-rigidity does not apply. Very few things are known about these groups, even interesting examples (for instance, Mostow then Deligne and Mostow constructed in the 1980's a finite number of non-arithmetic lattices, 14 in dimension 2 and 1 in dimension 3 which are still the only known examples). As opposed to the real hyperbolic case, there is no canonical construction of polyhedra or reflection groups (because there are no totally geodesic real hypersurfaces), which makes the constructions difficult but flexible. I am investigating, following Falbel, the role of Lagrangian subspaces (and their associated real reflections, or antiholomorphic involutions) in these groups, in the hope of discovering new ones.

For more details, my research statement can be found at the following address:

<http://www.math.jhu.edu/~paupert/research.pdf>

See also the (9-page) abstract of my PhD thesis:

<http://www.math.jhu.edu/~paupert/abstractthesis.pdf>

3.1 Publications and preprints

- (with E. Falbel) *Fundamental domains for finite subgroups in $U(2)$ and configurations of Lagrangians*. *Geom. Dedicata* **109** (2004), 221–238.
- (with M. Deraux and E. Falbel) *New constructions of fundamental polyhedra in complex hyperbolic space*. *Acta Math.* **194** (2005), 155–201.
- Configurations of Lagrangians, fundamental domains, and discrete subgroups of $PU(2, 1)$. Ph.D. Thesis. Université Paris 6 (2005).
- *Elliptic triangle groups in $PU(2, 1)$, Lagrangian triples and momentum maps*. Preprint 2006. To appear in *Topology*.
<http://www.math.jhu.edu/~paupert/triples.pdf>

- *Applications moment, polygones de configuration et groupes discrets de réflexions complexes dans $PU(2,1)$* . Preprint 2007. To appear in Séminaire de théorie spectrale et géométrie, Grenoble.
<http://www.math.jhu.edu/~paupert/tsggrenoble.pdf>
- (with J. Parker) *Unfaithful complex hyperbolic triangle groups II: Higher order reflections*. In preparation.
- *Fundamental domains for the sporadic complex reflection groups*. In preparation.

3.2 Invited talks

I attended for several years the “Complex hyperbolic geometry and representation theory” seminar at the Institut de Mathématiques de Jussieu, in which I gave some lectures as well as in other seminars of the Institut. I have also been invited to give talks at the following:

- “Ergodic geometry” seminar in the Ecole Polytechnique (may 2004).
- “Geometry and spectral theory” seminar in Grenoble (january 2006).
- “Ergodic geometry” seminar in the Ecole Polytechnique (january 2006).
- “Analytic geometry” seminar in Rennes (february 2006).
- “Geometry” seminar in Durham (march 2006).
- “Algebra and geometry ” seminar in Brest (april 2006).
- “Groups and geometry ” seminar in Toulouse (april 2006).
- “Ernest ” seminar in Luminy (april 2006).
- “Geometry, Topology, Dynamics” seminar in Orsay (may 2006).
- “Geometry-Topology ” seminar at the University of Maryland (november 2006).
- “Geometry/Topology ” seminar at Brown University (december 2006).
- “Geometry/Topology ” seminar at the University of Chicago (march 2007).

- “Pacific Northwest Geometry Seminar” at the University of Utah (april 2007).

3.3 Conferences

I have also attended, or will attend the following conferences:

- “DEA: Algèbres de Hecke et tresses”, organized by F. Digne in Luminy in april 2001.
- “Géométrie des variétés de petites dimensions et géométries spéciales”, organized by G. Besson and P. Gauduchon in Luminy in june 2002.
- “Géométrie hyperbolique complexe”, organized by E. Falbel and J. Parker in Luminy in july 2003.
- “Géométries à courbure négative ou nulle, Groupes discrets et rigidités”, organized by L. Bessières, A. Parreau and B. Rémy in Grenoble in june 2004.
- “Théorie géométrique et cohomologique des groupes: rigidité et déformations”, organized by V. Guirardel and B. Rémy in Luminy in april 2006.
- “Pacific Northwest Geometry Seminar” at the University of Utah (april 2007), invited speaker.

4 Teaching

- 1997-1998: Tutor in Mathematics at the Université Paris 7.
- 1998-1999: Oral examiner for engineering students at the Université Paris 7.
- 2001-2004: “Moniteur” (Teaching Assistant) at the Université Paris 7. Courses taught: undergraduate algebra, calculus, quadratic forms, differential equations, Fourier analysis.
- 2004-2006: “ATER” (Instructor) at the Université Paris 6. Courses taught: undergraduate as above and a graduate course in Geometry.

- 2006-2007: Visiting Assistant Professor at Johns Hopkins University. Courses taught: Calculus II (fall 2006), Linear Algebra, Non-Euclidean Geometry (spring 2007).

5 Languages

I am bilingual French/English (having lived in the United States as a child). I speak, read and write fluent German, and speak a bit of Spanish and Russian.