

**Trimester « Real Geometry » 12 sept. – 16 dec.**  
(organisers: M. Coste, M. Dickmann, D. Gondard)  
Centre Emile Borel, Institut Henri Poincaré, Paris – Network RAAG

Check the programme at : <http://www.ihp.jussieu.fr/ceb/Trimestres/T05-3/>

### Workshops

**Real algebra, quadratic form and model theory; algorithms and applications.**

(org.: M. Dickmann, D. Gondard, L. Mahé, M-F. Roy)

Wednesday 2 – wednesday 9 november

**Topology of real algebraic varieties; semialgebraic, subanalytic and o-minimal geometries.**

(org.: M. Coste, I. Itenberg, V. Kharlamov, K. Kurdyka, A. Parusinski, J.-J. Risler, D. Trotman)

Monday 5 – friday 9 december

### Courses

- **M. Coste: Constructible sets in real geometry ; tame geometry.**  
Tuesday 13, 20 and 27, wednesday 14, 21 and 28 sept. 9:00-10:30; wednesday 14 and 21 sept. 14:30 – 16:00.
- **M. Dickmann : Model theory in real algebra and geometry.**  
Tuesday 13 sept. 10:45-12:15; tuesday 13, 20 and 27 sept., 4, 11 and 18 oct., monday 24 oct. 16:30-18:00.
- **F. Acquistapace : Around Hilbert's 17<sup>th</sup> problem for analytic functions.**  
Wednesday 14 and 21 sept., 5 and 12 oct. 16:30-18:00; thursday 15 and 22 sept., 6 and 13 oct. 9:00 -10:30.
- **F. Rouillier : Algorithms in real algebraic geometry I.**  
Wednesday 14, 21 and 28 sept., tuesday 20 and 27 sept. 10:45-12:15.  
**M-F. Roy : Algorithms in real algebraic geometry II.**  
Monday 3 and 10 oct.: 9:00-10:30; tuesday 4 and 11 oct., wednesday 12 oct.: 10:45-12:15  
**S. Basu : Algorithms in real algebraic geometry III.**  
Monday 14, 21 and 28 nov.: 9:00-10:30; monday 14 and 21 nov.: 14:30-16:00
- **S. Orevkov : Real algebraic curves, braids and J-holomorphic curves.**  
Thursday 15 and 22 sept.: 10:45-12:15; thursday 15 and 22 sept., 6 oct.: 16:30-18:00; friday 16 and 23 sept., 7 oct.: 10:45-12:15.
- **B. Teissier : Introduction to valuations in algebraic geometry.**  
Monday 19 and 26 sept., 3, 10 and 17 oct.: 16:30-18:30.  
**D. Gondard : Valuations in real algebra.**  
Monday 24 oct.: 14:30-16:00; tuesday 25 oct., monday 14 nov.: 16:30-18:00
- **G. Mikhalkin : Amoebas of algebraic varieties and tropical geometry.**  
Friday 23 and 30 sept., 7, 14 21 and 28 oct.: 15:00-16:00 and 16:30 – 18:00; friday 18 and 25 nov., 2 and 16 dec.: 16:30-18:00.
- **S. Kuhlmann : Positive polynomials and moment problem.**  
Monday 26 sept., 3, 10 and 17 oct.: 10:45-12:15 and 14:30-16:00.
- **C. McCrory : Invariants and singularities.**  
Wednesday 28 sept., 5, 12, 19 and 26 oct.: 14:30-16:00; thursday 29 sept., 6, 13, 20 and 27 oct.: 10:45-12:15; friday 30 sept., 7, 14, 21 and 28 oct.: 9:00-10:30; thursday 27 oct.: 9:00-10:30.

- **E. Shustin : Patchworking construction and its applications.**  
Thursday 29 sept., 13 oct.: 16:30-18:00; friday 30 sept., 14 oct.: 10:45-12:15.
- **G. Comte: Metric properties in tame geometry.**  
Tuesday 4, 11, 18 and 25 oct., wednesday 5, 12, 19 and 26 oct.: 9:00-10:30
- **A. Macintyre: Model theory of elliptic functions.**  
Monday 17 and 24 oct.: 9:00-10:30; tuesday 18 and 25 oct., wednesday 19 oct.: 10:45-12:15;  
tuesday 15 nov.: 9:00-10:30 and 16:30-18:00.
- **L. Gonzalez-Vega: Using real algebraic geometry to improve curve and surface algorithms in computer aided geometric design applications.**  
Thursday 20 oct.: 9:00-10:30; monday 24 oct.: 10:45-12:15; wednesday 26 oct.: 10:45-12:15 and 16:30-18:00
- **A. Gabrielov: Real Schubert calculus and the B. and M. Shapiro conjecture.**  
Thursday 20 and 27 oct.: 16:30-18:00; friday 21 and 28 oct.: 10:45-12:15.
- **L. Mahé: Quadratic forms and real geometry.**  
Thursday 10 nov.: 9:00-10:30 and 14:30-16:00; friday 18 and 25 nov., 2 and 16 dec.: 10:45-12:15 and 14:30-16:00; thursday 1 and 15 dec.: 16:30-18:00.
- **F. Catanese: Deformation types of real algebraic functions and manifolds.**  
Thursday 10 nov.: 10:45-12:15 and 16:30-18:00; wednesday 16 and 23 nov.: 14:30-16:00;  
thursday 17 and 24 nov.: 10:45-12:15; monday 28 and tuesday 29 nov.: 14:30-16:00.
- **F. Sottile: Real solutions to equations from geometry.**  
Monday 14, 21 and 28, tuesday 15, 22 and 29, wednesday 16 and 23 nov.: 10:45-12:15
- **S. Basu: Complexity results in algebraic topology of semialgebraic sets.**  
Wednesday 16 and 23 nov., friday 18 and 25 nov.: 9:00-10:30.
- **J-P. Rolin: O-minimality from the point of view of geometry and analysis.**  
Wednesday 16 and 23 nov., 14 dec.: 16:30-18:00; thursday 17 and 24 nov.: 9:00-10:30; thursday 1 dec.: 10:45-12:15 and 14:30-16:00; thursday 15 dec.: 10:45-12:15.
- **P. Parrilo: Computational techniques based on sum of squares decompositions.**  
Monday 21, tuesday 22 and thursday 24 nov.: 16:30-18:00; tuesday 22 nov.: 9:00-10:30.
- **L. van den Dries: Asymptotic differential algebra.**  
Monday 28 nov.: 16:30-18:00; tuesday 29 nov.: 9:00-10:30 and 16:30-18:00; monday 12 and tuesday 13 dec.: 10:45-12:15 and 16:30-18:00; wednesday 14 dec.: 10:45-12:15.
- **L. Paunescu: Tree model, relative Newton polygon and applications.**  
Thursday 1 and 15, friday 2 and 16 dec.: 9:00-10:30.

## Seminars

- **Ordered algebraic structures** (F. Delon, M. Dickmann, D. Gondard): tuesdays 14:30-16:00
- **Real Geometry**: thursdays 14:30-16:00
- **Special day « Sources of real algebraic geometry »**: wednesday 30 november.  
Reading monday 19 sep. 14:00-16:00