

Mathematical Society of Japan – 12th International Research Institute

Singularity Theory and Its Applications

16 – 25 September, 2003

Sapporo Convention Center
(Sapporo, Japan)

Programme

Tuesday 16 September, 2003

Morning Session

204-Room

- 09:30 – 09:45 The Opening Ceremony
- 09:45 – 10:45 **TEISSIER, Bernard** (CNRS, France)
Geometric valuation theory. (1)
- 10:45 – 11:00 Tea Break
- 11:00 – 12:00 **VEYS, Wim** (Katholieke Universiteit Leuven, Belgium)
Arc spaces, motivic integration, and stringy invariants. (1)
- 12:00 – 13:30 Lunch Break

Afternoon Session

204-Room

- 13:30 – 14:30 **HERTLING, Claus** (Université Henri Poincaré Nancy 1, France)
 tt^ geometry and mixed Hodge structures.*
- 14:30 – 14:45 Tea Break
- 14:45 – 15:30 **ROMERO-FUSTER, Maria del Carmen** (Universitat de València, Spain)
Global invariants of stable maps from surfaces to the plane.
- 15:30 – 15:45 Tea Break
- 15:45 – 16:30 **NUÑO-BALLESTEROS, Juan J.** (Universitat de València, Spain)
The Caratheodory conjecture for totally semi-umbilic surfaces in \mathbb{R}^4 .
- 16:30 – 16:45 Tea Break
- 16:45 – 17:15 **AROCA, Fuensanta** (Universidad Nacional Autónoma de México, Mexico)
Puiseux parametric equations of analytic sets.
- 17:15 – 17:30 Tea Break
- 17:30 – 18:00 **SNOUSSI, Jawad** (Universidad Nacional Autónoma de México, Mexico)
Normal quasi-ordinary singularities.

206-Room

- 13:30 – 14:30 **OKA, Mutsuo** (Tokyo Metropolitan University, Japan)
Generalized Alexander polynomials.
- 14:30 – 14:45 Tea Break

- 14:45 – 15:30 **GORYUNOV, Victor V.** (The University of Liverpool, UK)
Simple symmetric matrix singularities and the subgroups of Weyl groups A_μ, D_μ, E_μ .
- 15:30 – 15:45 Tea Break
- 15:45 – 16:30 **TOKUNAGA, Hiroo** (Tokyo Metropolitan University, Japan)
The topology of the complements to certain rational curve arrangements and dihedral covers.
- 16:30 – 16:45 Tea Break
- 16:45 – 17:15 **AUDOUBERT, Benoit** (Tokyo Metropolitan University, Japan)
On Alexander polynomial of some torus curves.
- 17:15 – 17:30 Tea Break
- 17:30 – 18:00 **EYRAL, Christophe** (Tokyo Metropolitan University, Japan)
 π_1 -equivalent Zariski pairs.

Mid-sized Hall at Sapporo Convention Center

- 18:30 – 20:30 : Welcome Party

Wednesday 17 September, 2003

Morning Session

204-Room

- 09:30 – 10:30 **PARUSIŃSKI, Adam** (Université d'Angers, France)
Characteristic classes for singular varieties. (1)
- 10:30 – 11:00 Tea Break
- 11:00 – 12:00 **VEYS, Wim** (Katholieke Universiteit Leuven, Belgium)
Arc spaces, motivic integration, and stringy invariants. (2)
- 12:00 – 13:30 Lunch Break

Afternoon Session

204-Room

- 13:30 – 14:30 **KOHNO, Toshitake** (The University of Tokyo, Japan)
Hypergeometric integrals and conformal field theory.
- 14:30 – 14:45 Tea Break
- 14:45 – 15:30 **RIEMENSCHNEIDER, Oswald** (Universität Hamburg, Germany)
What are the "simple" normal surface singularities ?
- 15:30 – 15:45 Tea Break
- 15:45 – 16:30 **LÊ, Dũng Tráng** (ICTP, Italy)
TBA
- 16:30 – 16:45 Tea Break
- 16:45 – 17:15 **MAN, Show Han** (The University of Liverpool, UK)
Complex affine reflection groups related to the J_{10} singularity.
- 17:15 – 17:30 Tea Break
- 17:30 – 18:00 **MATEI, Daniel** (The University of Tokyo, Japan)
Massey products of complex plane curves.

206-Room

- 13:30 – 14:30 **SEDYKH, Vyacheslav D.** (Russia State University of Oil and Gas, Russia)
Resolution of corank 1 singularities of a generic front.
- 14:30 – 14:45 Tea Break
- 14:45 – 15:30 **DAVYDOV, Alexey Aleksandrovich** (Vladimir State University, Russia)
Phase transition in optimization of cyclic processes.
- 15:30 – 15:45 Tea Break
- 15:45 – 16:30 **IZUMI, Shuzo** (Kinki University, Japan)
Smooth Functions on Closed Subsets and Their Taylor Expansions.
- 16:30 – 16:45 Tea Break
- 16:45 – 17:15 **BIVIÀ-AUSINA, Carles** (Universitat Politècnica de València, Spain)
The index of analytic vector fields and Newton polyhedra.
- 17:15 – 17:30 Tea Break
- 17:30 – 18:00 **OHYAMA, Yousuke** (Osaka University, Japan)
Painlevé equations and reflection groups.

Thursday 18 September, 2003

Morning Session

204-Room

- 09:30 – 10:30 **TEISSIER, Bernard** (CNRS, France)
Geometric valuation theory. (2)
- 10:30 – 11:00 Tea Break
- 11:00 – 12:00 **PARUSIŃSKI, Adam** (Université d'Angers, France)
Characteristic classes for singular varieties. (2)
- 12:00 – 13:30 Lunch Break

Afternoon Session

204-Room

- 13:30 – 14:30 **SIERSMA, Dirk** (University Utrecht, The Netherlands)
The Geometry and Topology of Conflict Sets.
- 14:30 – 14:45 Tea Break
- 14:45 – 15:30 **WILSON, Leslie** (The University of Hawaii, USA)
Equisingularity of sections, (t^r) condition, and the integral closure of modules.
- 15:30 – 15:45 Tea Break
- 15:45 – 16:30 **FEHÉR, László M.** (Eötvös University, Hungary)
The degree of the dual of a homogeneous space.
- 16:30 – 16:45 Tea Break
- 16:45 – 17:15 **FICHOU, Goulwen** (Université d'Angers, France)
Virtual Betti numbers of arc-symmetric sets and Blow-Nash equivalence.
- 17:15 – 17:30 Tea Break
- 17:30 – 18:00 **YAMAGUCHI, Kohhei** (The University of Electro-Communication, Japan)
The topology of spaces of algebraic maps between projective spaces.

206-Room

- 13:30 – 14:30 **SAITO, Kyoji** (Kyoto University, Japan)
Real discriminant and flat structure of type ADE.
- 14:30 – 14:45 Tea Break
- 14:45 – 15:30 **LIBGOBER, Anatoly** (University of Illinois at Chicago, USA)
Isolated non normal crossings.
- 15:30 – 15:45 Tea Break
- 15:45 – 16:30 **BRASSELET, Jean-Paul** (IML - CNRS, France)
TBA
- 16:30 – 16:45 Tea Break
- 16:45 – 17:15 **TAKEUCHI, Kiyoshi** (University of Tsukuba, Japan)
D-modules and new numerical constraint for general hypersurface singularities.
- 17:15 – 17:30 Tea Break
- 17:30 – 18:00 **COGOLLUDO, José Ignacio** (Universidad de Zaragoza, Spain)
Alexander invariants and plane curves.

Friday 19 September, 2003

Morning Session

204-Room

- 09:30 – 10:30 **VEYS, Wim** (Katholieke Universiteit Leuven, Belgium)
Arc spaces, motivic integration, and stringy invariants. (3)
- 10:30 – 11:00 Tea Break
- 11:00 – 12:00 **TEISSIER, Bernard** (CNRS, France)
Geometric valuation theory (3)
- 12:00 – 13:30 Lunch Break

Afternoon Session

204-Room

- 13:30 – 14:30 **ARTAL BARTOLO, Enrique** (Universidad de Zaragoza, Spain)
Braid monodromy and topology of complexified real arrangements.
- 14:30 – 14:45 Tea Break
- 14:45 – 15:30 **NATANZON, Sergey** (Independent University of Moscow, Russia)
Effectivisation of Riemann theorem about complex domain and 2D Toda integrable hierarchy.
- 15:30 – 15:45 Tea Break
- 15:45 – 16:30 **TSUBOI, Shoji** (Kagoshima University, Japan)
The Chern numbers of the normalization of an algebraic threefold with ordinary singularities.
- 16:30 – 16:45 Tea Break
- 16:45 – 17:15 **NGUYỄN, Hũ'u Dũ'c** (University of Dalat, Vietnam)
Lagrangian singularities and some applications.
- 17:15 – 17:30 Tea Break
- 17:30 – 18:00 **VAQUIÉ, Michel** (Universite Paris 7, France)
Admise family associated to a valuation of $K[x]$.

206-Room

- 13:30 – 14:30 **ISHII, Shihoko** (Tokyo Institute of Technology, Japan)
Arc families and valuations for a toric variety
- 14:30 – 14:45 Tea Break
- 14:45 – 15:30 **RIMÁNYI, Richárd** (The University of North Carolina at Chapel Hill, USA)
Singularity techniques in geometric invariant theory.
- 15:30 – 15:45 Tea Break
- 15:45 – 16:30 **POLOTOVSKY Grigory M.** (Nizhny Novgorod State University, Russia)
On the classification of 7-th degree real decomposable algebraic curves.
- 16:30 – 16:45 Tea Break
- 16:45 – 17:15 **LIPPNER, Gabor** (Eötvös University, Hungary)
On the double point set of an immersed sphere.
- 17:15 – 17:30 Tea Break
- 17:30 – 18:00 **MUROLO, Claudio** (University of Provence, France)
Stratified transversality by isotopy.

Sapporo Beer Garden

- 19:00 – 21:00 : Banquet

Monday 22 September, 2003

Morning Session

204-Room

- 09:30 – 10:30 **PARUSIŃSKI, Adam** (Université d'Angers, France)
Characteristic classes for singular varieties. (3)
- 10:30 – 11:00 Tea Break
- 11:00 – 12:00 **KAZARIAN, Maxim** (Steklov Mathematical Institute, Russia)
Thom polynomials (1)
- 12:00 – 13:30 Lunch Break

Afternoon Session

204-Room

- 13:30 – 14:30 **HIRONAKA, Heisuke** (The Japan Association for Mathematical Sciences, Japan)
TBA (1)
- 14:30 – 14:45 Tea Break
- 14:45 – 15:30 **MATSUMOTO, Yukio** (The University of Tokyo, Japan)
On the fibering structure of the Fermat surface.
- 15:30 – 15:45 Tea Break
- 15:45 – 16:30 **SUWA, Tatsuo** (Hokkaido University, Japan)
Local intersection theory on singular surfaces and an application to discrete dynamics.
- 16:30 – 16:45 Tea Break
- 16:45 – 17:15 **YAMADA, Yuichi** (The University of Electro-Communication, Japan)
Plane curves as A' Campo's divides and Dehn surgery.
- 17:15 – 17:30 Tea Break
- 17:30 – 18:00 **KOBAYASHI, Mahito** (Akita University, Japan)
Views of projective planes from their planar projections.

206-Room

- 14:45 – 15:30 **MILMAN, Pierre** (The University of Toronto, Canada)
TBA
- 15:30 – 15:45 Tea Break
- 15:45 – 16:30 **SAIA, Marcelo José** (Universidade de São Paulo - São Carlos, Brazil)
 A -topological triviality of map germs and Newton filtrations.
- 16:30 – 16:45 Tea Break
- 16:45 – 17:15 **JORGE PÉREZ, Victor Hugo** (Universidade de São Paulo - São Carlos, Brazil)
Counting isolated singularities in germs of applications from \mathbb{C}^n to \mathbb{C}^p , $n < p$.
- 17:15 – 17:30 Tea Break
- 17:30 – 18:00 **SOARES JUNIOR, Carlos Humberto** (Universidade Regional do Cariri, Brazil)
Newton polyhedra and C^k - G -triviality, $G = \mathbb{R}, \mathbb{C}$ and K .

Tuesday 23 September, 2003

Morning Session

204-Room

- 09:30 – 10:30 **HIRONAKA, Heisuke** (The Japan Association for Mathematical Sciences, Japan)
TBA (2)
- 10:30 – 11:00 Tea Break
- 11:00 – 12:00 **KAZARIAN, Maxim** (Steklov Mathematical Institute, Russia)
Thom polynomials (2)
- 12:00 – 13:30 Lunch Break

Afternoon Session

204-Room

- 13:30 – 14:30 **TERAO, Hiroaki** (Tokyo Metropolitan University, Japan)
The root systems, vector fields and the geometry of orbit spaces.
- 14:30 – 14:45 Tea Break
- 14:45 – 15:30 **MATVEEV, Vladimir S.** (The University of Freiburg, Germany)
Fundamental group of manifolds admitting geodesically equivalent metrics; a new application of singular Lagrange foliations in differential geometry.
- 15:30 – 15:45 Tea Break
- 15:45 – 16:30 **SCHERBAK, Inna** (Tel Aviv University, Israel)
Rational functions with prescribed critical points & related topics.
- 16:30 – 16:45 Tea Break
- 16:45 – 17:15 **KAWAHARA, Yukihiro** (Tokyo Metropolitan University, Japan)
Vanishing and basis of twisted de Rham cohomology for an arrangement of hyperplanes.
- 17:15 – 17:30 Tea Break
- 17:30 – 18:00 **ADACHI, Jiro** (Osaka University, Japan)
Global stability of distributions of higher corank.

206-Room

- 13:30 – 14:30 **SOTOMAYOR, Jorge** (Universidade de São Paulo, Brazil)
Bifurcations of Umbilic Points.
- 14:30 – 14:45 Tea Break
- 14:45 – 15:30 **HILSUM, Michel** (CNRS, France)
Pontryagin classes of topological manifolds.
- 15:30 – 15:45 Tea Break
- 15:45 – 16:30 **KURDYKA, Krzysztof** (Université de Savoie, France)
Bounds for geodesic diameter of semialgebraic sets via gradient trajectories with applications to qualitative Sard's Theorem.
- 16:30 – 16:45 Tea Break
- 16:45 – 17:15 **LI, Bing** (Central South University, China)
On singularities of geometric solutions of systems of quasilinear partial differential equations.
- 17:15 – 17:30 Tea Break
- 17:30 – 18:00 **STROZYNA, Ewa** (Warsaw University of Technology, Poland)
Orbital normal forms for the nilpotent singularity.

Wednesday 24 September, 2003

Morning Session

204-Room

- 09:30 – 10:30 **KAZARIAN, Maxim** (Steklov Mathematical Institute, Russia)
Thom polynomials (3)
- 10:30 – 11:00 Tea Break
- 11:00 – 12:00 **HIRONAKA, Heisuke** (The Japan Association for Mathematical Sciences, Japan)
TBA (3)
- 12:00 – 13:30 Lunch Break

Afternoon Session

204-Room

- 13:30 – 14:30 **WALL, C. Terence C.** (The University of Liverpool, UK)
Functions on a resolution tree.
- 14:30 – 14:45 Tea Break
- 14:45 – 15:30 **SZÜCS, András** (Eötvös University, Hungary)
Beyond the Thom polynomials. The use of the universal singular map.
- 15:30 – 15:45 Tea Break
- 15:45 – 16:30 **KOIKE, Satoshi** (Hyogo University of Teacher Education, Japan)
Non-smooth points set of fibres of a semialgebraic mapping. (Joint work with Masahiro Shiota)
- 16:30 – 16:45 Tea Break
- 16:45 – 17:15 **PEI, Donghe** (Northeast Normal University, China)
The $S_t^1 \times S_s^2$ -valued lightcone Gauss map of a Lorentzian 3-submanifold in semi-Euclidean 5-space \mathbb{R}_2^5 .
- 17:15 – 17:30 Tea Break
- 17:30 – 18:00 **OULD MOHAMED ABDERRAHMANE, Yacoub** (Saitama University, Japan)
Weighted homogeneous polynomials and blow-analytic equivalence.

206-Room

- 13:30 – 14:30 **GUSEIN-ZADE, Sabir** (Moscow State University, Russia)
Filtrations, Poincare series, integrals with respect to the Euler characteristics. (provisional)
- 14:30 – 14:45 Tea Break
- 14:45 – 15:30 **TAJIMA, Shin'ichi** (Niigata University, Japan)
On holonomic D -modules attached to non-quasihomogeneous isolated singularities.
- 15:30 – 15:45 Tea Break
- 15:45 – 16:30 **DOMITRZ, Wojciech** (Warsaw University of Technology, Poland)
On the Relative Poincaré Lemma for singular varieties and its applications.
- 16:30 – 16:45 Tea Break
- 16:45 – 17:15 **VARLEY, Adrian** (The University of Warwick, UK)
On the tangencies of foliations with embedded submanifolds.
- 17:15 – 17:30 Tea Break
- 17:30 – 18:00 **SAJI, Kentaro** (Hiroshima University, Japan)
Bifurcations of Voronoi diagrams and its application to braid theory.

Thursday 25 September, 2003

Morning Session

204-Room

- 09:30 – 10:30 **JANECZKO, Stanisław** (Mathematical Institute Polish Academy of Sciences, Poland)
Minimal criteria for automorphisms to be symplectomorphisms.
- 10:30 – 11:00 Tea Break
- 11:00 – 12:00 **BOGAEVSKY, Ilya** (Independent University of Moscow, Russia)
Caustics of singular Lagrangian varieties.
- 12:00 – 13:30 Lunch Break

206-Room

- 09:30 – 10:30 **SAEKI, Osamu** (Kyushu University, Japan)
Topology of singular fibers of generic maps.
- 10:30 – 11:00 Tea Break
- 11:00 – 12:00 **RUAS, Maria Aparecida** (Universidade de São Paulo - São Carlos, Brazil)
M-deformations of \mathcal{A} -simple Σ^{n-p+1} -germs from \mathbb{R}^n to \mathbb{R}^p , $n \geq p$.
- 12:00 – 13:30 Lunch Break

Afternoon Session

204-Room

- 13:30 – 14:30 **MAJIMA, Hideyuki** (Ochanomizu University, Japan)
Vanishing theorems in asymptotic analysis and related topics.
- 14:30 – 14:45 Tea Break
- 14:45 – 15:30 **PAUNESCU, Laurentiu** (Sydney University, Australia)
Arc-analytic roots of analytic functions are Lipschitz.
- 15:30 – 15:45 Tea Break
- 15:45 – 16:30 **SADYKOV, Roustam** (University of Florida, USA)
Singularities of maps of 4-manifolds into 3-manifolds.
- 16:30 – 16:45 Tea Break
- 16:45 – 17:15 **PRATOUSSEVITCH, Anna** (The University of Bonn, Germany)
On the link space of a \mathbb{Q} -Gorenstein quasi-homogeneous surface singularity.
- 17:15 – 17:30 Tea Break
- 17:30 – 18:00 **PFLAUM, Markus** (Johann Wolfgang Goethe-University, Germany)
Homology theories of function algebras on subanalytic sets.

206-Room

- 13:30 – 14:30 **DAMON, James** (The University of North Carolina at Chapel Hill, USA)
Scale-based geometry and singularity theory and its application to computer imaging.
- 14:30 – 14:45 Tea Break
- 14:45 – 15:30 **TROTMAN, David** (University of Provence, France)
TBA
- 15:30 – 15:45 Tea Break
- 15:45 – 16:30 **MORMUL, Piotr** (Warsaw University, Poland)
Codimension-2 singularities of Goursat flags are in vast majority not simple.
- 16:30 – 16:45 Tea Break

- 16:45 – 17:15 **OHMOTO, Toru** (Kagoshima University, Japan)
Thom polynomials and equivariant Schwartz-MacPherson class.
- 17:15 – 17:30 Tea Break
- 17:30 – 18:00 **YAMAMOTO, Minoru** (Kyushu University, Japan)
Eversion and cobordism of a fold map of S^2 to \mathbf{R}^2 with a connected singular set.

204-Room

- 18:00 – 18:15 : The Closing Ceremony