Section 05: Differential Geometry and Global Analysis

Invited Lectures

Wednesday, 19 August — MA 001

14:00 – 14:45 **Leonid Polterovich,** Tel Aviv University, Tel Aviv, Israel
Geometry on the Group of Hamiltonian Diffeomorphisms *(I: p.77)*
Chair: Helmut H.W. Hofer

15:00 – 15:45 **Yongbin Ruan,** University of Wisconsin-Madison, Madison, USA
Quantum cohomology and its applications *(I: p.77)*
Chair: Helmut H.W. Hofer

Thursday, 20 August — MA 001

16:15 – 17:00 **Joachim Lohkamp,** Universität Augsburg, Augsburg, Germany
Curvature Contents of Geometric Spaces *(I: p.75)*
Chair: Jean-Pierre Bourguignon

17:15 – 18:00 **Yakov Eliashberg,** Stanford University, Stanford, USA
Invariants in Contact Topology *(I: p.70)*
Chair: Jean-Pierre Bourguignon

Friday, 21 August — MA 001

14:00 – 14:45 **Simon K. Donaldson,** Stanford University, Stanford, USA
Positive line bundles in symplectic geometry *(I: p.69)*
Chair: Ulrich Pinkall

15:00 – 15:45 **François Labourie,** Université Paris-Sud, Orsay, France
Large Group Actions on Manifolds *(I: p.73)*
Chair: Ulrich Pinkall

Saturday, 22 August — MA 001

16:15 – 17:00 **Dominic Joyce,** Lincoln College, Oxford, UK
Compact Riemannian manifolds with exceptional holonomy *(I: p.73)*
Chair: Boris Dubrovin

17:15 – 18:00 **Sylvestre Gallot,** U.M.P.A., École Normale Supérieure de Lyon, Lyon, France
Curvature-decreasing maps are volume-decreasing *(I: p.71)*
Chair: Boris Dubrovin

Monday, 24 August — MA 001

14:00 – 14:45 **Ulrich Pinkall,** TU Berlin, Berlin, Germany
Quaternionic line bundles and the differential geometry of surfaces *(I: p.75)*
Chair: Dirk Ferus

15:00 – 15:45 **Tobias Holck Colding,** Courant Institute, New York University, New York, USA
Manifolds and spaces with Ricci curvature bounds *(I: p.68)*
Chair: Dirk Ferus

Tuesday, 25 August **MA 001**

16:15 – 17:00 **Boris Dubrovin,** International School for Advanced Studies, Trieste, Italy and Steklov Math. Institute, Moscow, Russia
Geometry and analytic theory of Frobenius manifolds *(I: p.69)*
Chair: Alexander I. Bobenko

Wednesday, 26 August **MA 001**

14:00 – 14:45 **Dmitri Burago,** Pennsylvania State University, University Park, USA
Hard Balls Gas and Alexandrov Spaces of Curvature Bounded Above *(I: p.68)*
Chair: Frank Duzaar

15:00 – 15:45 **Gerhard Huisken,** Universität Tübingen, Tübingen, Germany
Evolving hypersurfaces by their curvature *(I: p.72)*
Chair: Frank Duzaar

Short Communications and Poster Sessions

Short Communications **Wednesday, 19 August**

Kähler Manifolds **MA 041**
Chair: Bill Watson

16:15 – 16:30 **Keizo Hasegawa,** Niigata University, Niigata, Japan
A class of compact Kählerian solvmanifolds and a general conjecture *(p.71)*
16:30 – 16:45 **Toyoko Kashiwada,** Saitama College, Tokyo, Japan
The integrability of almost generalized Hopf manifolds *(p.72)*
16:45 – 17:00 **Bill Watson,** St. John's University, Jamaica, USA
The Goldberg Conjecture is true for the four-dimensional total space of an almost Hermitian submersion *(p.84)*

Topology of Manifolds **MA 041**
Chair: Sebastian Goette

17:15 – 17:30 **Christina Sormani,** Johns Hopkins University, Baltimore, Maryland, USA
The Topology of Noncompact Manifolds with Positive Ricci Curvature *(p.80)*
17:30 – 17:45 **Gerald M. Lodder,** New Mexico State University, Las Cruces, NM, USA
Leibniz Cohomology for Differentiable Manifolds *(p.75)*
17:45 – 18:00 **Sebastian Goette,** Universität Freiburg, Freiburg, Germany
Equivariant η-invariants and η-forms *(p.70)*

Miscellaneous Topics **MA 043**
Chair: Zheng-Chao Han

17:30 – 17:45 **Margaret F. Symington,** University of Texas at Austin, Austin, TX, USA
Symplectic rational blowdowns *(p.81)*
17:45 – 18:00 **Zheng-Chao Han,** Rutgers University, Piscataway, NJ, USA
New existence results on conformal metrics with constant interior scalar curvature and constant boundary mean curvature *(p.71)*

Short Communications — Thursday, 20 August

Special Submanifolds I — **MA 041**
Chair: Takashi Okayasu

14:00 – 14:15	**Vladimir G. Tkachev,** Volgograd State University, Volgrograd, Russia *Upper estimates of volume growth for minimal quasigraphs*	*(p.82)*
14:15 – 14:30	**Liu Ximin,** Dalian University of Technology, Dalian, P.R. China *Positively curved totally complex submanifolds in the Cayley projective space*	*(p.75)*
14:30 – 14:45	**Takashi Okayasu,** Toyama University, Toyama, Japan *A Bernstein result for minimal graphs of higher codimension*	*(p.77)*

Special Submanifolds II — **MA 041**
Chair: Ivko M. Dimitric

15:00 – 15:15	**Valentin Gabriel Cristea,** Technical University of Budapest, Budapest, Hungary *Totally umbilical graded submanifolds*	*(p.66)*
15:15 – 15:30	**S.M.B. Kashani,** Tarbiat Madarres University, Tehran, Iran *Cohomogeneity One Revolution Hypersurfaces of the Euclidean Space*	*(p.72)*
15:30 – 15:45	**Ivko M. Dimitric,** Pennsylvania State University, Uniontown PA, USA *Low-type submanifolds of non-flat complex space forms*	*(p.67)*

Short Communications — Saturday, 22 August

Surface Theory — **MA 041**
Chair: John M. Sullivan

14:00 – 14:15	**Udo J. Hertrich-Jeromin,** TU, Berlin, Germany *Transformations of Isothermic surfaces*	*(p.71)*
14:15 – 14:30	**Bernd Ammann,** Math. Institut der Uni Freiburg, Freiburg, Germany *New estimates for the Laplace and Dirac spectrum of 2-Tori* *and applications to the Willmore functional*	*(p.64)*
14:30 – 14:45	**John M. Sullivan,** University of Illinois, Urbana, IL, USA *Triunduloids: Embedded Constant-Mean-Curvature Surfaces with Three Ends*	*(p.81)*

Curves — **MA 041**
Chair: Joachim Giesen

15:15 – 15:30	**Kazuyuki Enomoto,** Science University of Tokyo, Oshamambe, Hokkaido, Japan *Total absolute curvature of nonclosed curves*	*(p.67)*
15:30 – 15:45	**Joachim Giesen,** ETH Zürich, Zürich, Switzerland *Geometry of One-Manifolds*	*(p.69)*

Short Communications — Monday, 24 August

Integrable Geodesic Flows and Perturbation Problems — **MA 041**
Chair: Vladimir S. Matveev

16:15 – 16:30	**Masayuki Igarashi,** Science University of Tokyo, Yamakoshi-gun, Japan *On Hermitian-Liouville structures on compact Hermitian surfaces*	*(p.71)*
16:30 – 16:45	**Li Ma,** Tsinghua University, Beijing, China, Peoples Republic of *Stable critical point Theory in perturbation problems*	*(p.75)*
16:45 – 17:00	**Vladimir S. Matveev,** Max-Planck-Institut für Mathematik, Bonn, Germany *Geodesic equivalence and integrability*	*(p.76)*

Local Differential Geometry — **MA 043**
Chair: Jose Miguel Veloso

16:15 – 16:30	**Nikolaus K. Stephanidis,** Aristoteles University, Thessaloniki, Greece *Über einige Invarianten in der Theorie der Strahlensysteme*	*(p.81)*
16:30 – 16:45	**Katerina Polyakova,** Kaliningrad State University, Kaliningrad, Russia *Parallel displacements along manifold of osculating planes of a surface*	*(p.78)*
16:45 – 17:00	**Jose Miguel Veloso,** Universidade Federal Do Para, Belem-PA, Brazil *Almost pseudo-Hermitian manifolds*	*(p.83)*

Homogeneous Spaces — **MA 041**
Chair: Friedbert Prüfer

17:15 – 17:30	**Takashi Koda,** Toyama University, Toyama, Japan *Weakly symmetric property of Riemannian 3-symmetric spaces*	*(p.72)*
17:30 – 17:45	**Jan Slovák,** Department of Algebra and Geometry, Masaryk Univesity, Brno, Czech Republic *Parabolic Geometries*	*(p.80)*
17:45 – 18:00	**Friedbert Prüfer,** Universität Leipzig, Leipzig, Germany *Local homogeneity and differential operators*	*(p.79)*

Special Submanifolds/Exterior Differentiation — **MA 043**
Chair: Peter Rögen

17:15 – 17:30	**Iaroslav A. Kopylov,** Sobolev Institute of Mathematics, Novosibirsk, Russia *Normal solvability of the operator of exterior derivation on some surfaces in* $\mathbb{R}^N$	*(p.73)*
17:30 – 17:45	**Yoshio Matsuyama,** Department of Mathematics, Chuo Univ., Tokyo, Japan *On totally real submanifolds in* $CP^n(c)$	*(p.76)*
17:45 – 18:00	**Peter Rögen,** Technical University of Denmark, Lyngby, Denmark *Embedding and knotting of flat surfaces in 3-space*	*(p.79)*

Short Communications — Tuesday, 25 August

Affine Differential Geometry — **MA 041**
Chair: Salvador D.R. Gigena

14:00 – 14:15	**Kurt Leichtweiß,** Professor Emeritus, Universität Stuttgart, Stuttgart, Germany *On the infinitesimal affine rigidity of ellipsoids in the n-space*	*(p.74)*
14:15 – 14:30	**Christine Scharlach,** FB Mathematik, TU, Berlin, Germany *Affine Hyperspheres*	*(p.79)*
14:30 – 14:45	**Salvador D.R. Gigena,** Universidad Nacional de Rosario, Rosario, Argentina *On Affine Hypersurfaces with Constant Sectional Curvature*	*(p.70)*

General Geometric Structures on Manifolds — **MA 043**
Chair: Lutz Weimann

14:00 – 14:15	**Sergey V. Zuev,** Penza State Pedagogical University, Penza, Russia *Analytic continuations of* $SU(2n)$*-invariant Ricci-flat Kähler metric*	
14:15 – 14:30	**Claudio Gorodski,** University of São Paulo, São Paulo, Brazil *Contact Sub-Riemannian Symmetric Spaces*	*(p.70)*
14:30 – 14:45	**Artur E. Fischer,** University of California, Santa Cruz CA, USA *The Adjoint Formulation and Symplectic Reduction*	*(p.68)*

Geodesics and Distance — **MA 041**
Chair: Jin-ichi Itoh

15:00 – 15:15	**Minoru M.T. Tanaka,** Tokai University, Hiratsuka, Japan *Sard Theorem for the distance function*	*(p.82)*
15:15 – 15:30	**Lilia Del Riego,** Facultad de Ciencias, UASLP, San Luis Potosí, México *Exponential map for general sprays and connections*	*(p.66)*
15:30 – 15:45	**Jin-ichi Itoh,** Kumamoto University, Kumamoto, Japan *The Lipschitz continuity of the distance function to the cut locus*	*(p.72)*

Lorentz Manifolds Chair: Franki Dillen		**MA 043**
15:00 – 15:15	**Andrzej Krolak,** Max-Planck-Institute for Gravitational Physics, Potsdam, Germany *Cauchy Horizon Endpoints and Differentiability*	*(p.74)*
15:15 – 15:30	**Angel L. Garrido Bullon,** Departamento de Matematicas, Alcorcon (Madrid), Spain *Foliations of Lorentz manifolds*	*(p.66)*
15:30 – 15:45	**Franki Dillen,** Kuleuven, Heverlee, Belgium *Ruled Weingarten surfaces in Minkowski space*	*(p.66)*

Short Communications — Wednesday, 26 August

Analysis on Manifolds Chair: Marian Gidea		**MA 041**
16:15 – 16:30	**Yuri G. Borisovich,** Voronezh State University, Voronezh, Russia *Methods of global analysis in problems of solvability of nonlinear equations and inclusions*	*(p.65)*
16:30 – 16:45	**Sylvie Paycha,** Université Blaise Pascal, Aubiere, France *Regularization as a Geometric and Stochastic Tool in Infinite Dimensions*	*(p.78)*
16:45 – 17:00	**Marian Gidea,** Loyola University of Chicago, Chicago, U.S.A. *Non-Smooth Dynamical Systems that Exhibit Hyperbolic Behavior*	*(p.69)*

Polyhedra/Webs Chair: Hakki Ismail Erdogan		**MA 043**
16:30 – 16:45	**Anatoly D. Milka,** Institute for Low Temperature Physics, Kharkov, Ukraine *Linear isometric deformations of polyhedra*	*(p.77)*
16:45 – 17:00	**Hakki Ismail Erdogan,** Istanbul Technical University, Istanbul, Turkey *On a class of hexagonal-surface-web of spheres*	*(p.68)*

Differential Equations on Manifolds Chair: Congming Li		**MA 041**
17:15 – 17:30	**Atsushi Tachikawa,** Science University of Tokyo, Chiba-ken, Japan *A Nonexistence Result of Harmonic Maps between Hadamard Manifolds*	*(p.82)*
17:30 – 17:45	**Asya Vasilyevna Aminova,** Kazan State University, Kazan, Russia *The pseudo-Riemannian manifolds with common geodesics*	*(p.64)*
17:45 – 18:00	**Congming Li,** Dept. of Applied Math., Univ. of Colorado, Boulder CO, USA *Prescribing Scalar Curvature on S^n*	*(p.74)*

Poster Session — Friday, 21 August

16:15 – 18:00 **MA 144**

Philip P. Boalch, Wadham College, Oxford, Great Britain
Symplectic geometry and isomonodromic deformations *(p.65)*

Ilia A. Bogaevski, Independent University of Moscow, Moscow, Russian Federation
Singularities of convex hulls of closed hypersurfaces *(p.65)*

Cristina Draper, Universidad de la Rioja, Lagrono, Spain
Algebras related to Lie triple systems and applications to differential geometry *(p.67)*

Birte Feix, University of Cambridge, Cambridge, Great Britain
Hyperkähler metrics on cotangent bundles *(p.68)*

Lew Friedland, State University of New York, Geneseo, NY, USA
Spectral geometry on almost Hermitian manifolds *(p.69)*

Vladimir A. Geyler, Mordovian State University, Saransk, Russia
Periodic point interactions on a Riemannian manifold *(p.251)*

Valery Konnov, Samara State Pedagogical University, Samara, Russia
Differential geometry of algebraic manifolds *(p.73)*

Alexei G. Kovalev, University of Edinburgh, Edinburgh, United Kingdom
Gluing theorems for anti-self-dual metrics *(p.73)*