

Training school on Cartan Geometry

PROGRAMME AND ABSTRACTS

September 4–8, 2023
Masaryk University
Brno, Czech Republic



COST ACTION
CALISTA

<http://conference.math.muni.cz/cartan>



CA21109 – COST Action CaLISTA

Cartan geometry, Lie, Integrable Systems, quantum group Theories for Applications - CaLISTA aims to advance cutting-edge research in mathematics and physics through a systematic application of the ideas and philosophy of Cartan geometry, a thorough Lie theoretic approach to differential geometry.

Training school on Cartan Geometry
Programme and Abstracts
Brno 2023

1. General information

The school part of the programme consists of four invited series of lectures, complemented by two tutorial sessions. Further invited and contributed talks and posters, and one outreach event on Wednesday, will complete the programme.

Morning Programme

	9:00 - 9:50	coffee/tea	10:10 - 11:00	11:10 - 12:00
Monday	registration		Doubrov	Gover
Tuesday	Francois		Slovak	Gover
Wednesday	Doubrov		Gover	Schwachhöfer
Thursday	Slovak		Francois	Lychagin
Friday	Doubrov		Francois	Slovak

Afternoon Programme

	13:30 - 14:10	14:15-14:55	15:00-15:30	coffee/tea	16:00 - 16:40	16:45-17:25	17:30-18:00
Monday	Morales Para	Makhmali	Ravera		Zhitomirskii	Kruglikov	Day
Tuesday	poster session 70'		Krutov		Ivanov	Minchev	Kycia
Wednesday	O Buachalla	tutorial			social functions		
Thursday	Cap	Ferreira	Carotenuto		The	Roubtsov	Moucka
Friday	tutorial						

All lectures will be in the lecture hall M1 in the Department of Mathematics and Statistics (building 8 in the campus), the other rooms around will serve for gathering and catering purposes. Feel free to use the boards, etc., there.



The *Training school on Cartan Geometry* is an event organized and supported by the CaLISTA project, preceding another training school, *Quantum Groups and Noncommutative Geometry*, held in the following week in Prague.

There will be a **special thematic issue of the journal Archivum Mathematicum**, related to these two events, with *Rita Fioresi*, *Réamon O’Buachala*, and *Jan Slovák* as guest editors (a classical open access journal, without any fees, cf. www.emis.de/journals/AM/, fully indexed in Scopus and WOS).

All participants are invited to submit their contributions. Short innovative surveys and original research papers are welcome. All contributions will be peer-reviewed the usual way. The **deadline for the contribution is November 30, 2023**. The LaTeX typset manuscripts should be sent either to the journal office, archmath@math.muni.cz, or directly to slovak@municz, before the deadline.

Social Programme

There will be only modest social programme organized in Brno. On Wednesday, there will be an informal guided walk through the Brno downtown. We plan to walk from the campus after the shorter programme.

Later in the afternoon, there will be the *outreach event* held in the South Moravian Center for International Mobility (JCMM) on Česká street 11, (www.jcmm.cz/en), a discussion devoted to the interplay between Philosophy, Mathematics, and Physics, addressed to talented youth in the region and initiated by a talk by Jordan Francois.

For the evening, we made booking in one of the local beer&wine places (www.pivovar-poupe.cz/en), we are looking forward to enjoying this event together (though everybody in his/her own cost).

3. Programme

MORNING SESSION

Invited talks

MONDAY • 9:00-12:00 • ROOM: M1

- *registration and coffee/tea* (9:00–10:10)

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- *Boris Doubrov* (10:10–11:00)
Cartan geometry via exterior calculus, I
- *A. Rod Gover* (11:10–12:00)
The geometric approach to tractor calculus, and its applications, I

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AFTERNOON SESSION

Invited and contributed talks

MONDAY • 13:30–18:00 • ROOM: M1

- *Juan Carlos Morales Parra* (13:30–14:10)
Cartan geometry and physics: vortex duality and Chern-Simons gravity
- *Omid Makhmali* (14:15–14:55)
Weyl metrizable of 3-dimensional projective structures and CR submanifolds
- *Lucrezia Ravera* (15:00–15:30)
Geometric approach to supergravity in superspace and some applications

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- *Michail Zhitomirskii* (16:00–16:40)
Exact normal forms for real hypersurfaces in \mathbb{C}^{n+1}
- *Boris Kruglikov* (16:45–17:25)
Revisiting XOX: Dispersionless integrable systems in five dimensions
- *Nicklas Day* (17:30–18:00)
Geometry of Rank 2 Distributions: Cartan prolongation, symplectification, and the existence of a normal Cartan connection

MORNING SESSION

Invited talks

TUESDAY • 9:00-12:00 • ROOM: M1

- *Jordan François* (9:00–9:50)
Why Cartan geometry in Physics? I

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- *Jan Slovák* (10:10–11:00)
Cartan geometry via Algebra, I
- *A. Rod Gover* (11:10–12:00)
The geometric approach to tractor calculus, and its applications, II

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AFTERNOON SESSION

Invited and contributed talks, posters

TUESDAY • 13:30–18:00 • ROOM: POSTER ROOM AND M1

- *Poster session* (13:30–14:40)
Martin Doležal, Configuration space of a 3-link snake robot model
Keegan Flood, Principal Symbols in Noncommutative Geometry
Mirjana Milijevic, Cartan Geometry and Statistical Manifolds
Lenka Zalabová, Conformal geodesics and conserved quantities on conformally homogeneous spaces
- *Andrey Krutov*(14:50–15:30)
Non-integrable distributions with simple infinite-dimensional Lie (super)algebras of symmetries

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- *Stefan Ivanov* (16:00–16:40)
Solutions to the quaternionic contact Yamabe equation on the 3-Sasakian spaces and the qc Yamabe problem
- *Ivan Minchev* (16:45–17:25)
A geometry of cubic discriminants in 8 dimensions
- *Radek Kycia* (17:30–18:00)
Homotopy methods in solving exterior differential equations

MORNING SESSION

Invited talks

WEDNESDAY • 9:00-12:00 • ROOM: M1

- *Boris Doubrov* (9:00–9:50)
Cartan geometry via exterior calculus, II

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- *A. Rod Gover* (10:10–11:00)
The geometric approach to tractor calculus, and its applications, III
- *Lorenz Schwachhöfer* (11:10–12:00)
Information Geometry in the classical and quantum setting

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AFTERNOON SESSION

Tutorial discussion and Outreach Event

WEDNESDAY • 13:30–18:00 • ROOM: TUTORIAL ROOMS AND JCMM

- *Tutorial Session* (13:30–15:00)

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We organize a walk through the downtown, an outreach event at JCMM (Ceska 11, at 16:30), beer&wine&dinner gathering (Dominikanska 15, at 19:00, www.pivovar-poupe.cz/en)

MORNING SESSION

Invited talks

THURSDAY • 9:00-12:00 • ROOM: M1

- *Jan Slovák* (9:00–9:50)
Cartan geometry via Algebra, II

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- *Jordan François* (10:10–11:00)
Why Cartan geometry in Physics? II
- *Valentin Lychagin* (11:10–12:00)
On equivalence of differential operators

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AFTERNOON SESSION
Invited and contributed talks

THURSDAY • 13:30–18:00 • ROOM: M1

- *Andreas Čap* (13:30–14:10)
Induced para-Kähler-Einstein metrics on cotangent bundle
- *Ana Cristina Ferreira* (14:15–14:55)
Geodesic completeness of pseudo-Riemannian Lie groups
- *Alessandro Carotenuto* (15:00–15:30)
TBA

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- *Dennis The* (16:00–16:40)
On uniqueness of submaximally symmetric vector ODEs of C-class
- *Roubtsov* (16:45–17:25)
Kontsevich and Buchstaber polynomials, Multiplication Kernels and split-
ted discriminants
- *Filip Moučka* (17:30–18:00)
Cartan Calculus on Symmetric Algebra

MORNING SESSION
Invited talks

FRIDAY • 9:00–12:00 • ROOM: M1

- *Boris Doubrov* (9:00–9:50)
Cartan geometry via exterior calculus, III

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- *Jordan François* (10:10–11:00)
Why Cartan geometry in Physics? III
- *Jan Slovák* (11:10–12:00)
Cartan geometry via Algebra, III

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AFTERNOON SESSION

Invited talk and tutorial discussion, posters

FRIDAY • 13:30–18:00 • ROOM: M1 AND TUTORIAL ROOMS

- *Réamon O’Buachala* (13:30–14:10)
Quantum flag manifolds and noncommutative geometric representations
- *Tutorial discussion* (14:15–15:30)

4. Abstracts

Andreas Čap

Induced para-Kähler-Einstein metrics on cotangent bundle

THURSDAY • 13:30–14:10 • ROOM: M1

This talk reports on joint work with T. Mettler (Uni Distance, Brig, Switzerland). A torsion-free linear connection on the tangent bundle TM of a smooth manifold M gives rise to a split signature metric on T^*M , the so-called Patterson-Walker metric. If one starts with a Weyl connection for a torsion-free AHS structure, there is a natural modification of this metric, which has the congenial feature that the resulting metric is automatically para-Kähler Einstein and (up to isomorphism) depends only on the underlying AHS structure. I'll describe these metrics in the cases of projective, conformal and almost Grassmannian structure and then discuss the background of the construction which is based on Cartan geometries. This gives rise to a split signature metric on T^*M , the so-called Patterson-Walker metric. If one starts with a Weyl connection for a torsion-free AHS structure, there is a natural modification of this metric, which has the congenial feature that the resulting metric is automatically para-Kähler Einstein and (up to isomorphism) depends only on the underlying AHS structure. I'll describe these metrics in the cases of projective, conformal and almost Grassmannian structure and then discuss the background of the construction which is based on Cartan geometries.

Alessandro Carotenuto

THURSDAY • 15:00–15:30 • ROOM: M1

Nicklas Day

Geometry of Rank 2 Distributions: Cartan prolongation, symplectification, and the existence of a normal Cartan connection

MONDAY • 17:30–18:00 • ROOM: M1

In 1970, N. Tanaka gave a method for obtaining a canonical frame for distribution with a constant Tanaka symbol. In 2009, B. Doubrov and I. Zelenko utilized a symplectification procedure to obtain a canonical frame for rank

2 distributions independent of their Tanaka symbol under an additional assumption called maximality of class. For a rank 2 distribution on an n -dimensional manifold, the symplectification can be interpreted as the result of $n-4$ iterative Cartan prolongations and the canonical frame in the method of Doubrov-Zelenko can be arranged to be a Cartan connection associated to the rank 2 distribution obtained from the original one by $n-4$ Cartan prolongation. The talk is devoted to the question: what is the minimal i such that to the i th Cartan prolongation of any rank 2 distribution one can assign a canonical Cartan connection. For $n=5$ it is well known due to E. Cartan (1910) that this minimal i is equal to 0, i.e. the canonical Cartan connection can be assigned to the original distribution without any Cartan prolongation. We proven a generalization: for $n \geq 5$, the minimal such i is equal to $n-5$, i.e. occur one step before the symplectification. The talk is based on joint work with Igor Zelenko.

Martin Doležal

Configuration space of a 3-link snake robot model

TUESDAY • 13:30–14:40 • POSTER ROOM

I will show some interesting observations about a model of a 3-link snake robot that consists of a nonholonomic two-dimensional distribution in a five-dimensional configuration space. This is one of the well studied (2,3,5)-geometries, but it is still unclear whether it forms a homogeneous space.

Boris Doubrov

Cartan geometry via exterior calculus, I – III

MONDAY, WEDNESDAY, FRIDAY • MORNING SESSION • ROOM: M1

The aim of these lectures is to explore computational techniques for constructing Cartan connections and explicitly calculating their invariants in local coordinates by means of the standard exterior calculus. Starting from classical examples of E.Cartan and S.-S.Chern, we show how to construct Cartan connections naturally associated with scalar ODEs and explore the notion of distinguished curves on examples form projective and contact projective geometries and proceed to more complex examples such as Cartan connections associated to vector distributions.

Ana Cristina Ferreira

Geodesic completeness of pseudo-Riemannian Lie groups

THURSDAY • 14:15–14:55 • ROOM: M1

We will present recent developments in the classification of Lie groups with all their left-invariant pseudo-Riemannian metrics complete. More concretely, we will discuss the specifics of geodesic completeness when the manifold in question is a Lie group and recall the seminal work of Marsden for the compact (homogeneous) case. We will see how an interpretation in Riemannian terms of his techniques provided us with tools for characterising completeness even for general manifolds. As for Lie groups, we will show how a certain notion of “(sub)linear growth” allowed us to establish large classes of Lie groups whose left-invariant metrics are all complete.

Keegan Flood

Principal Symbols in Noncommutative Geometry

TUESDAY • 13:30–14:40 • POSTER ROOM

”We construct an N -indexed family of endofunctors on the category of left modules over a unital associative algebra equipped with a differential calculus. These jet functors give rise to a category of linear differential operators between left modules which satisfy many properties one might expect, and in particular most maps which are expected to be differential operators (connections, differentials, partial derivatives, Spencer operators), indeed are. We also discuss principal symbols, representability, vector fields, and Lie brackets in this setting. Principal symbols will be shown to play a key role in the construction of the Lie bracket. This is joint work with M. Mantegazza and H. Winther. ”

Jordan François

Why Cartan geometry in Physics? I – III

TUESDAY, THURSDAY, FRIDAY • MORNING SESSION • ROOM: M1

We propose a conceptual and historical overview of the natural place of Cartan geometry in the fundamental physics of gauge field theory. We will end by hinting at why some of its natural extensions should play clarifying role in modern theoretical physics.

Rod Gover

The geometric approach to tractor calculus, and its applications I – III

MONDAY, TUESDAY, WEDNESDAY • MORNING SESSION • ROOM: M1

Conformal geometry and tractors; prolongation of some relevant overdetermined PDE; The geometry of scale; Geometric manifold models – including

spacetime models as models for compactification; Geometric compactification and related boundary calculus; Applications to the massive wave equation and its scattering as an example; The asymptotics of scattering and related topics. Conformal Boundary conditions for the Einstein equations.

Stefan Ivanov

Solutions to the quaternionic contact Yamabe equation on the 3-Sasakian spaces and the qc Yamabe problem

TUESDAY • 16:00–16:40 • ROOM: M1

All solutions to the qc-Yamabe equation on the quaternionic sphere and on the compact 3-Sasakian spaces are found. Consequently, all positive extremals and the best constant in the Sobolev-Folland-Stein inequality on the quaternionic Heisenberg group are presented explicitly. It is shown that the qc Yamabe problem on locally non-spherical compact qc manifolds always has a solution.

Boris Kruglikov

Revisiting XOX: Dispersionless integrable systems in five dimensions

TUESDAY • 16:45–17:25 • ROOM: M1

Dispersionless integrability has been related to integrable background geometry via canonical structure on solutions for systems with quadratic characteristic variety (for instance, second order scalar PDEs). It turns out that the existence of dispersionless Lax pair implies the restriction that this variety is necessary degenerate if the number of independent variables exceeds four, consequently no convenient conformal metric can exist. It will be explained that the proper higher-dimensional analog is a compatible sub-conformal structure. This talk will be focused on dimension five, where the background geometry is still parabolic, and so the corresponding curvatures are given by the general theory of regular normal parabolic structures. The work is joint with Omid Makhmali.

Andrey Krutov

Non-integrable distributions with simple infinite-dimensional Lie (super)algebras of symmetries

TUESDAY • 15:00–15:30 • ROOM: M1

One phenomenon of superization, first proclaimed by D. Alekseevsky, D. Leites,

and I. Shchepochkina in 1980, is outstanding: one simple vectorial Lie superalgebra L can be realised as an algebra of symmetries of several non-equivalent non-integrable (a.k.a. non-holonomic) distributions. Such distributions correspond to particular gradings of L , which are called Weisfieler gradings. For infinite-dimensional simple Lie (super)algebras L over \mathbb{C} or an algebraically closed field of characteristic $p > 2$, we describe all Weisfieler gradings of L . This leads us to the classification of the corresponding non-integrable distributions. This is joint work with D. Leites and I. Shchepochkina.

Radosław Kycia

Homotopy methods in solving exterior differential equations

MONDAY • 17:30–18:00 • ROOM: M1

I will show how you can solve specific exterior differential equations as easy as ODEs using homotopy operator approach. It includes inversion of covariant exterior derivative as a special case as well as its powers.

Valentin Lychagin

On equivalence of differential operators

THURSDAY • 11:10–12:00 • ROOM: M1

The equivalence problem for differential operators with respect to actions of algebraic Lie pseudogroups shall be discussed. The cases of pseudogroups of all local diffeomorphisms as well as local symplectomorphisms will be considered in detail.

Omid Makhmali

Weyl metrizability of 3-dimensional projective structures and CR submanifolds

TUESDAY • 14:15–14:55 • ROOM: M1

A projective structure is Weyl metrizable if it has a torsion-free representative that preserves a conformal structure. We interpret Weyl metrizability of 3-dimensional projective structures as certain 5-dimensional nondegenerate CR submanifolds in a class of 7-dimensional 2-nondegenerate CR structures.

Mirjana Milijevic

Cartan Geometry and Statistical Manifolds

TUESDAY • 13:30–14:40 • POSTER ROOM

We will give short introduction of statistical manifolds, and some open questions about relating them with Cartan geometry.

Ivan Minchev

A geometry of cubic discriminants in 8 dimensions

MONDAY • 16:45–17:25 • ROOM: M1

The talk is based on a joint work with Elitza Hristova. We show that the formula for the discriminant of a cubic polynomial determines a special $Sp(2)Sp(1)$ -orbit, $\mathcal{C}(\mathbb{R}^8)$, in the space of all 4-tensors on \mathbb{R}^8 that possess the algebraic properties of a hyper-Kähler curvature. In fact, we show that $\mathcal{C}(\mathbb{R}^8) \cong Sp(2)Sp(1)/SO(4)_{irr}$, where $SO(4)_{irr}$ is a copy of $SO(4)$ in $Sp(2)Sp(1)$ that corresponds to an irreducible action on \mathbb{R}^8 . To each almost quaternion-Hermitian manifold M , there is a canonical fiber bundle $\mathcal{C}(M) \rightarrow M$ with fibers diffeomorphic to $Sp(2)Sp(1)/SO(4)_{irr}$. Each section of $\mathcal{C}(M)$ —called a cubic discriminant on M —determines a reduction of the structure group of M to $SO(4)_{irr}$. A non-trivial example of a cubic discriminant on a 8-manifold is provided by the Wolf space $G_2/SO(4)$. We show that locally the only integrable cubic discriminants are those of the flat space and the Wolf space. We provide also a new curvature characterization for the Riemannian metric on $G_2/SO(4)$.

Juan Carlos Morales Parra

Cartan geometry and physics: vortex duality and Chern-Simons gravity

MONDAY • 13:30–14:10 • ROOM: M1

Cartan geometry has been shown to provide a proper algebro-geometric setting to describe magnetic and gravitational systems in 3 dimensions. In the first half of the talk we show in a compact way how abelian vortices in curved 3d spacetimes are in correspondence with non-abelian Cartan connections on flat spacetimes (unifying results from Ross and Schroers). Then, in the second half we show how generalized Cartan connections allow to relate 3d Chern-Simons theory and 3d Einstein gravity, for both signatures and any value of cosmological constant (extending results from Wise and Capriotti).

Filip Moučka

Cartan Calculus on Symmetric Algebra

THURSDAY • 17:30–18:00 • ROOM: M1

Cartan calculus on the space of symmetric tensor fields will be introduced.

First, we find a certain analogue of the exterior derivative. Then we will define analogues of the Lie derivative and the Lie bracket of vector fields in both ways, algebraically and using the vector field's flow. Finally, the geometrical meaning of the introduced objects will be discussed.

Réamon O’Buachala

Quantum flag manifolds and noncommutative geometric representations

FRIDAY • 13:30–14:10 • ROOM: M1

We present recent progress on noncommutative geometric representations of quantum algebraic objects, such as finite-dimensional Drinfeld-Jimbo modules, Nichols algebras, and quantum homogeneous coordinate rings of quantum flag manifolds. The noncommutative geometry underlying these realisations is a q -deformed Dolbeault complex for the A-series quantum flag manifolds. This complex is built in a very natural way from Lusztig's quantum root vectors, and is shown to be quite sensitive to the required choice of reduced decomposition of the longest element of the Weyl group. When these constructions are restricted to the quantum Grassmannians, they coincide with earlier research on the celebrated Heckenberger-Kolb differential calculus.

Lucrezia Ravera

Geometric approach to supergravity in superspace and some applications

MONDAY • 15:00–15:30 • ROOM: M1

In 1978, Y. Ne’eman and T. Regge proposed a new approach to (super)gravity in which the theory is constructed on the (super)group manifold defining the Lie algebra valued gauge fields in the coadjoint representation of the (super)group. I will discuss key aspects, developments and applications of this approach in the context of supergravity, where it provides a geometric formulation of the theory in superspace and a geometric interpretation of supersymmetry transformations as superdiffeomorphisms.

Vladimir Roubtsov

Kontsevich and Buchstaber polynomials, Multiplication Kernels and splitted discriminants

THURSDAY • 16:45–17:25 • ROOM: M1

We discuss few very recent results of a work in progress (in collaboration

with I. Gaiur and D. Van Straten and with V. Buchstaber and I. Gaiur) about interesting properties of multiplication Bessel kernels, which includes well-known Clausen and Sonin-Gegenbauer formulae of XIX century, special examples of Kontsevich discriminant loci polynomials, raised as addition laws for special two-valued formal groups (Buchstaber-Novikov-Veselov) and period functions for some CY and Landau–Ginzburg models.

Lorenz Schwachhöfer

Information Geometry in the classical and quantum setting

WEDNESDAY • 11:10–12:00 • ROOM: M1

In this talk, we shall give an outline on developments in classical and quantum Information Geometry. We shall give an introduction to the subject, but also present some recent results in collaboration with F. Ciaglia (Madrid), J. Jost and F. di Nocera (both Leipzig).

Jan Slovák

Cartan geometry via Algebra. I-III

TUESDAY, THURSDAY, FRIDAY • MORNING SESSION • ROOM: M1

The series of talks will recall the algebraic approach to invariant operators via the induced modules with special focus on the generalized flag manifolds. Here the induced modules are the well known (generalized) Verma modules, and they play the role of topological duals to the infinite jets of sections of the homogenous bundles. Further, we shall focus on the translation principle and its curved version based on the semiholonomic jets. On the way we shall have to move from the Klein’s geometries to their Cartan’s curved generalizations. If time allows, we shall pay special attention to the example of Grassmanians of n -planes in $2n$ dimensions, as a higher dimensional generalization of the four-dimensional conformal geometry.

Dennis The

On uniqueness of submaximally symmetric vector ODEs of C-class

THURSDAY • 16:00–16:40 • ROOM: M1

A classical result due to Sophus Lie is the classification of scalar ODE that are submaximally symmetric with respect to contact transformations. I’ll discuss how analogous results for vector ODE (focusing particularly on the so-called “C-class”) were found using Cartan geometric techniques. This is based on joint work with Johnson Kessy.

Lenka Zalabová

Conformal geodesics and conserved quantities on conformally homogeneous spaces

TUESDAY • 13:30–14:40 • POSTER ROOM

Michail Zhitomirskii

Exact normal forms for real hypersurfaces in \mathbb{C}^{n+1}

MONDAY • 16:00–16:40 • ROOM: M1

I will give a simple way to construct an exact normal form for real hypersurfaces in \mathbb{C}^{n+1} , for any $n \geq 1$. I will explain how this normal form can be used for studying symmetries.

5. List of participants

Luca Accornero; KU Leuven
Arnab Kumar Bhattacharjee; Charles University
Samuel Blitz; Masaryk University
Andreas Čap; University of Vienna; Austria
Alessandro Carotenuto; Masaryk University; Czech Republic
Ioannis Chrysikos; Masaryk University
Nicklas Day; Texas A&M University
Martin Doležal; Masaryk University
Boris Doubrov; Belarusian State University
Ana Cristina Ferreira; University of Minho
Rita Fioresi; University of Bologna
Keegan Flood; UniDistance Suisse
Jarah Fluxman; University of Edinburgh
Jordan François; Masaryk University.
Tymon Frelik; University of Warsaw & CFT PAN
Muharrem Tuncay Gençoğlu; Fırat University
Silvia María González Collazo; University of Vigo
Rod Gover; University of Auckland
Jan Gregorovič; TU Wien and Ostravska univerzita
Zhangwen Guo; University of Vienna
Jaroslav Hrdina; Brno University of Technology
Ondřej Hulík; VUB
Stefan Ivanov; Sophia University
Toni Kodžoman; Ruder Bošković Institute
Martina Kolníková; Masaryk University
Boris Kruglikov; UiT the Arctic University of Norway
Andrey Krutov; Charles University
Radosław Kycia; Cracow University of Technology/Masaryk University
Emanuele Latini; Bologna University
Roman Lávička; Charles University
Petr Liczman; Masaryk University
María A. Lledó; Universitat de València
Martin Lukarevski; University 'Goce Delcev'-Stip
Valentin Lychagin; Tromso University
Omid Makhmali; University of Granada
Mauro Mantegazza; Charles University
Alice Marraffa; ETH Zurich
Mirjana Milijevic; University of Banja Luka

Ivan Minchev; Sofia University
Juan Carlos Morales Parra; Heriot-Watt University
Filip Moučka; Czech Technical University
Réamonn O’Buachalla; Charles University
Tomáš Petit; Masaryk University
Damjan Pistalo; University of Luxembourg
Roland Púček; University of Jena
Lucrezia Ravera; Politecnico di Torino
Vladimir Roubtsov; LAREMA , Université d’Angers
Nina Rutten; Utrecht University
Eivind Schneider; UiT The Arctic University of Tromsø
Lorenz Schwachhöfer; TU Dortmund University
Josef Šilhan; Masaryk University
Jan Slovák; Masaryk University
Rudolf Smolka; Czech Technical University in Prague
Vladimír Souček; Charles University
Radek Suchánek; Masaryk University
David Sykes; Masaryk University
Dennis The; UiT The Arctic University of Norway
Miloslav Torda; University of Liverpool
Matouš Trnka; Masaryk University
Henrik Winther; UiT - The Arctic University of Norway
Vojtěch Žádník; Masaryk University
Lenka Zalabová; University of South Bohemia
Fabrizio Zanello; Georg-August-Universität Göttingen
Bartosz Maciej Zawora; University of Warsaw
Michail Zhitomirskii; Technion