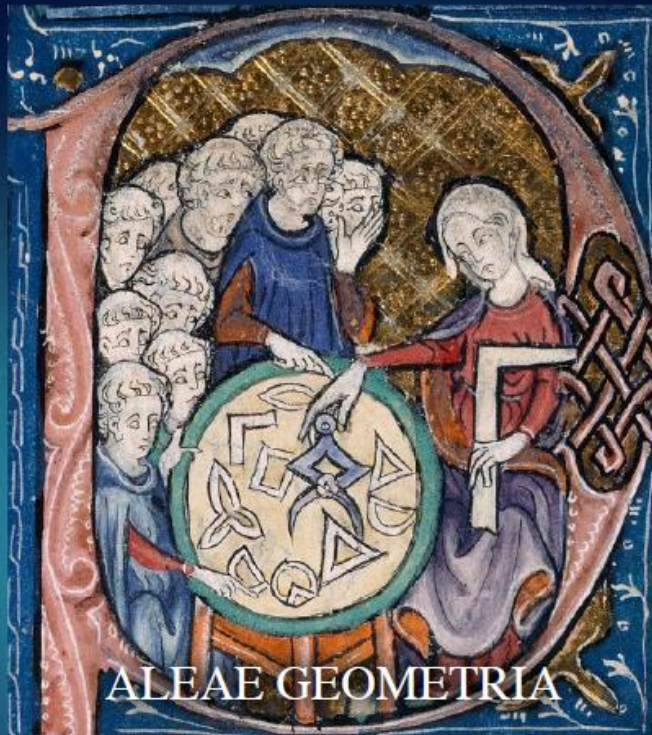


6th Conference on the
**Geometric Science
of Information**

GSI'23

FROM CLASSICAL TO QUANTUM INFORMATION GEOMETRY

Saint-Malo, 30th August to 1st September 2023



ALEAE GEOMETRIA

THALES
Building a future we can all trust



10 years anniversary

6th International Conference on
**GEOMETRIC SCIENCE
OF INFORMATION**

GSI'23

Saint-Malo, France

30th August to 1st September 2023



SOCIÉTÉ DE L'ÉLECTRICITÉ, DE L'ÉLECTRONIQUE
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The Sky looks
like Quantum
States
Geometry

The Sky looks
like a
Symplectic
Foliation

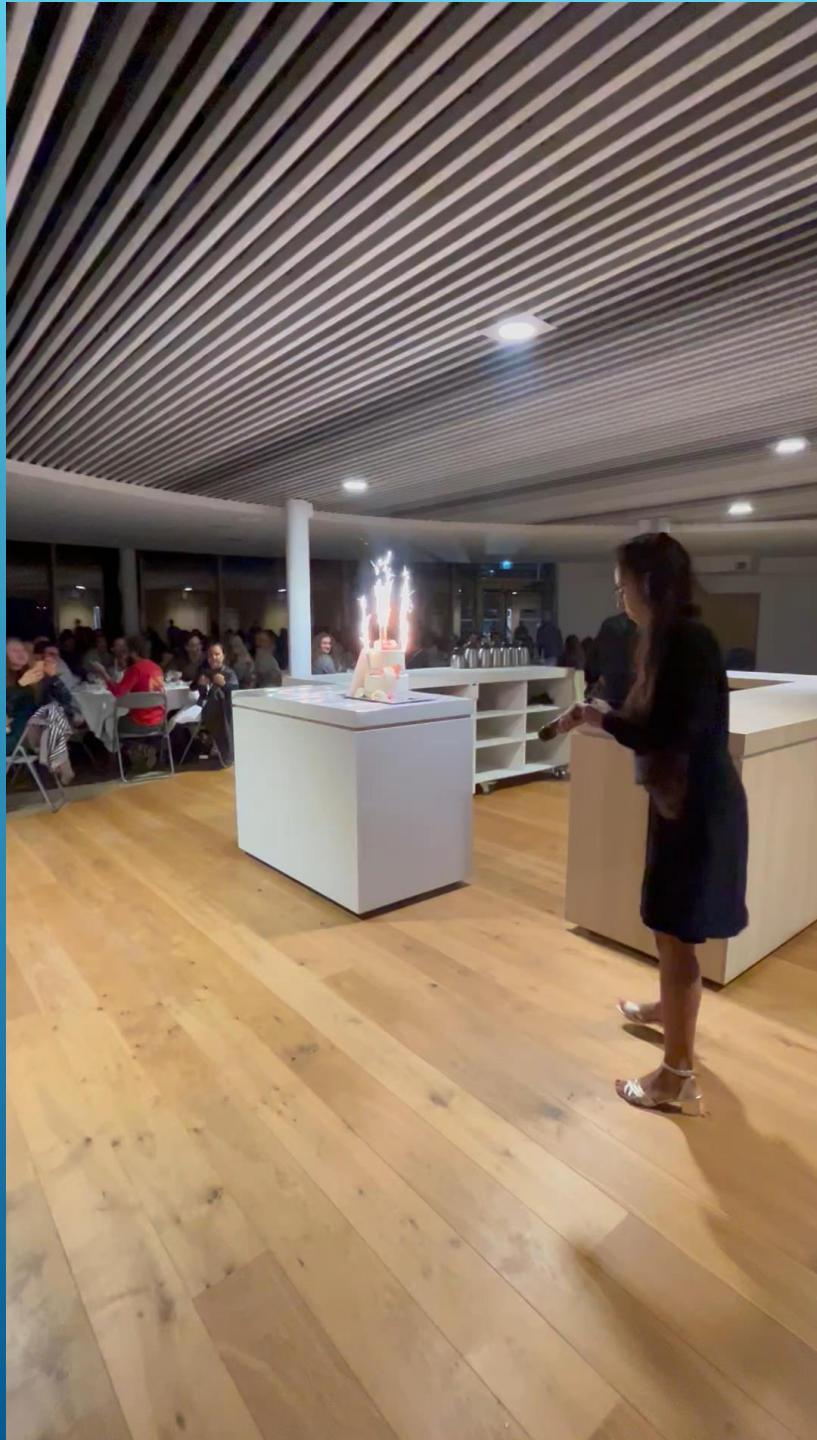
The Sky looks
like a Fluid
Computer

The Sky looks
like a Gibbs
Manifold

we award the prize for the worst GSI'23 time keeper to ...

François Gay-Balmaz



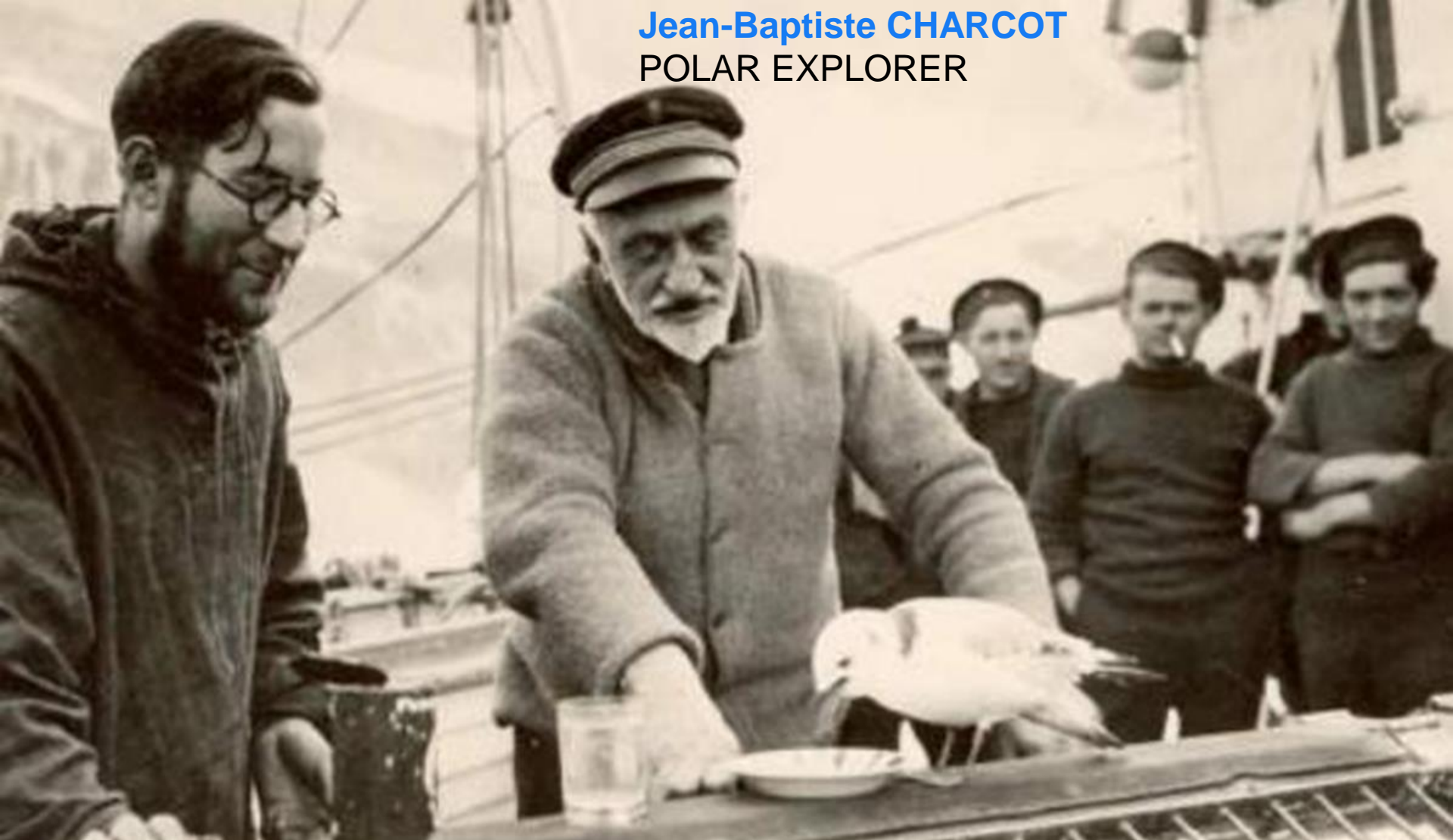


Many Thanks to Imène Ahmad



**It is in old soup tureens that
the best soups are prepared**

Jean-Baptiste CHARCOT
POLAR EXPLORER



Devant une bonne choucroute au jambon, ils oublièrent le pudding de graisse de phoque farci aux myrtilles ! — (Jean-Baptiste Charcot, Dans la mer du Groenland, 1928)

In front of a good ham sauerkraut, they forgot the seal fat pudding stuffed with blueberries!! — (Jean-Baptiste Charcot, Dans la mer du Groenland, 1928)



All is in
my thesis
report,
but that's
fine

Mademoiselle Paulette Libermann
On Dinard Beach, in front of Saint-Malo



*“If chance
is the
antithesis
of law, then
we need to
discover
the laws of
chance”*

- C. R. Rao



Dear GSI session Organizer,

We are delighted to announce that in partnership with the Springer Nature Information Geometry (INGE) journal: <https://www.springer.com/journal/41884>

We are launching a special issue of selected papers of Geometric Science of Information (GSI'23): <https://conference-gsi.org/>

See) <https://www.springer.com/journal/41884/updates/24084742>

The first invited paper just got published with free PDF access:

<https://link.springer.com/article/10.1007/s41884-023-00111-2>

Long papers extended contributions accepted to GSI'23 will be submitted via <https://www.editorialmanager.com/inge/default2.aspx> by selecting GSI23 Special issue

Publication is free of charge with optional paid open access which can be waived depending on whether your institute belongs to Springer program <https://www.springernature.com/gp/open-research/institutional-agreements> // <https://www.springer.com/journal/41884/how-to-publish-with-us#Fees%20and%20Funding>

Notice that peer-reviewing of the special GSI'23 issue of INGE is ***independent of the peer-reviewing of GSI'23***. When submitting to this special issue, please provide a list of 5 potential reviewers (with emails and affiliations, web pages). Accepted papers will be published online first and a GSI volume with print edition will be issued upon completion of the GSI'23 SI.

Deadlines for submitting to the special issue:

- Opening: July 15th 2023
- Closing: December 31st 2023

We kindly ask session Chairs to identify their most novel high-quality papers in their sessions, and to invite the authors of those papers to submit to the GSI'23 SI.

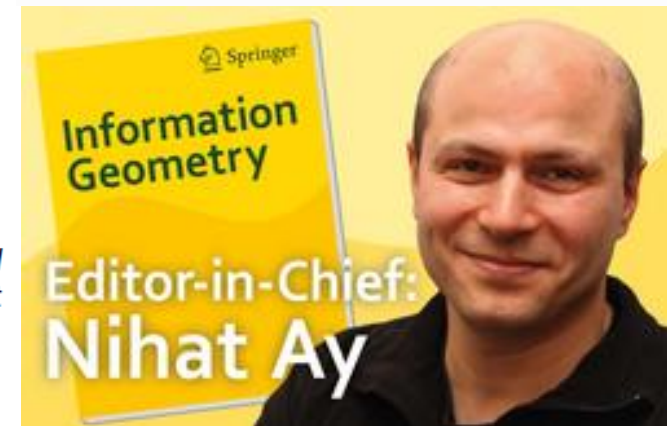
<https://link.springer.com/collections/cadahjefhd>



Frederic Barbaresco and Frank Nielsen



Special Issue: GSI23



<https://www.springer.com/journal/41884/editors>

Announcement: Maurice Fréchet 50th years anniversary of death

https://perso.lpsm.paris/~mazliak/programme_ang.html



Welcome

Scientific Committee

Program

General information

Inscription (free but
mandatory)



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M

aurice Fréchet: Mathematics, the abstract and the concrete

International conference

Institut Henri Poincaré, Paris

9-11 October 2023

The year 2023 marks the 50th anniversary of the death of Maurice Fréchet (1878-1973) and the present conference is the first to be organized about this hyper-active character who was one of the most influential French scientists of the 20th century. The author of major discoveries in analysis, notably in topology and integration theory, Fréchet was also a pioneer of modern probability and statistics to which he made fundamental contributions. He was also a great organizer of the mathematical life of his time, in particular at the University of Strasbourg after 1919 and then in Paris, at the Institut Henri Poincaré, where Borel installed him as a project leader from the opening in 1928. But Fréchet was also concerned with other aspects of intellectual life: important epistemological reflections, a leading role in the setting up of new institutions (the CNRS, the AFNOR, etc.) and also a very strong commitment to the development of Esperanto, of which he was a passionate promoter. In addition to all this, he was a polyglot traveller who travelled the world for six decades and created an impressive network around him. This three-day conference will attempt to present different elements of this rich life and abundant production.

Organization : Frédéric Jaëck (Aix-Marseille) and Laurent Mazliak (Sorbonne-Université, Paris)



ALMA MATER STUDIORUM
UNIVERSITA DI BOLOGNA

COST ACTION
CALISTA

HOME

ABOUT CALISTA PROJECT

CONTACTS



Funded by
the European Union



WG4 Workshop, Mines ParisTech, **July 2024, PARIS**

- Symmetry and equivariance in Deep Learning and Geometry-Informed Neural Network
- Symplectic Model of Lie Groups Thermodynamics & Deep Learning on Lie Groups
- Maxplus algebra, tropical geometry and mathematical morphology in Deep Learning

CA21109 – COST Action CaLISTA – How to participate in the Action

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.

WG4: Vision models

VISION

In this WG we focus on the study of new models to advance in our understanding of vision in the framework of the new techniques as deep learning (DL), geometric deep learning (GDL).

CONTACTS

Jesus Angulo
MINES Paris, France
[Write an e-mail](#)

Goals and Tasks:

G4.1: Provide a new understanding of the interplay between the Geneo theory (in TDA) and the new machine learning algorithms coming from geometric deep learning with group equivariance.

G4.2: Provide new models for vision via Cartan Geometry, understand its application in DL, GDL.

T4.1: Enhance the Geneo approach to machine learning vision applications, beyond topological data analysis, towards the applications to concrete problems (molecular dynamics, material science).

T4.2: Reframe the GDL approach via symmetric space theories developed in Cartan geometry.

T4.3: Interpret SGD and the metric structure of the model space with Souriau Lie Thermodynamics. Interpret the coadjoint orbits of the symmetry group action as level set of entropy; exploit their symplectic structure to construct further symmetries (group equivariant GDL).

Aims of the Project

Symmetry is a central unifying theme in mathematics and physics.

In this project we focus our attention on symmetries realized through Lie groups and Lie algebras.

In addition to the spectacular achievements in representation theory, and differential geometry, Lie theory is also exceptionally important for the formalization of fundamental physical theories.

CaLISTA aims to advance cutting-edge research in mathematics and physics through a systematic application of the ideas and philosophy of Cartan geometry, a thoroughly Lie theoretic approach to differential geometry.

In addition to making major progress in Cartan geometry itself, CaLISTA aims to develop crucial applications to integrable systems and supersymmetric gauge theories.

Quantum groups and their quantum homogeneous spaces come into the play as a bridge between these topics: quantum groups stem originally from the R-matrix formulation in integrable systems, and their homogeneous spaces offer prototypical examples of noncommutative parabolic geometries.

Parabolic geometry is the first and possibly the most important example of Cartan geometry, and one of the main aims of CaLISTA is to obtain a quantum generalization.

Surprisingly, Lie theory and Cartan geometry play a role in an exciting new interpretation of the differential structure, and related dynamics, of models for popular algorithms of vision like Deep Learning and the more recent Geometric Deep Learning.

CaLISTA aims to investigate and improve on these techniques. CaLISTA will provide essential mathematical models with far-reaching applications, placing Europe among the leading actors in these innovative research areas.

EU COST Action CaLIGOLA:
<https://site.unibo.it/calista/en>



carnotlille2024

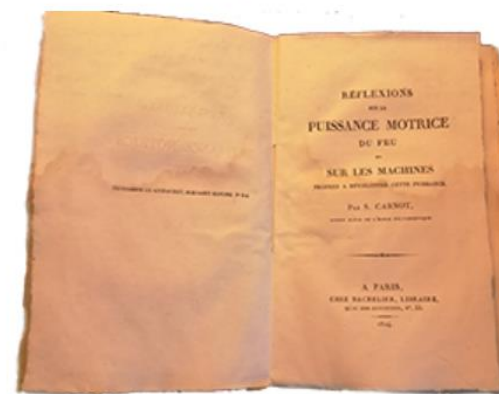
Celebration of 200 years since Sadi Carnot's
Réflexions sur la puissance motrice du Feu, 1824–2024

11-13 September 2024 Lille/Villeneuve d'Ascq, France

© DRONEPIOR / Altstadt Lille Panorama



International Colloquium Carnot 1824-2024



Raffaele Pisano Received it as Kind Present by M. Thierry & Mme Caroline Carnot, direct descendants' Carnot Family

The book is one of the original 600 copies published by Sadi Carnot in 1824, as archived at Carnot's Family Chateau de Presles, Paris

Celebration of 200 years since Sadi Carnot's *Réflexions sur la puissance motrice du Feu*, 1824–2024 & les Carnots

Hosted by History of Physics and Applied Science & Technologies Team (HOPAST) at IEMN, France

Patronage by French Académie des Sciences

11-13 September 2024, LILLIAD, University of Lille, France

Official Website URL: www.carnotlille2024.com

**7th International Conference on
GEOMETRIC SCIENCE
OF INFORMATION
GSI'25**

Trifouilly-les-Oies, France

End of August 2025





The 6th international conference on Geometric Science of Information **Best Paper Award**

SPONSORED BY  Springer



- Difficult selection, owing to multiplicity of fields and topics, and to high quality papers
- No selection process is perfect, and not all very deserving papers can receive the award. Selection process as follows, though.
- Papers were prefiltered by selecting those with the highest reviews, as well as those recommended by the program committee (with a high intersection between both categories).
- At this stage, a number of very high quality papers...
- Then, papers were evaluated and selected based on their clarity, creativity, and potential impact. Novelty was emphasized for this award.
- Although not a criterion (this is not a student paper award), we are happy when the best paper turns out to involve a student, owing the potential impact on her/his career.



GSI 2023

August 30th-September 1st 2023
Saint Malo, France

The 6th international conference on
Geometric Science of Information

Best Paper Award

PRESENTED TO

Ioana Ciuclea, Alice Barbara Tumpach, Cornelia Vizman
for their paper
Shape spaces of nonlinear flags



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