Differentiable Stacks, Poisson Geometry and related geometric structures

Report of Contributions

https://indico.cern.ch/e/1057931

Contribution ID: **1** Type: **not specified**

Minicourse on stacks in algebraic geometry vs differential geometry - session 1

Monday, 7 February 2022 09:00 (50 minutes)

Presenter: SAFRANOV, Pavel

Contribution ID: **2** Type: **not specified**

What is a Poisson structure on a différentiable stack?

Monday, 7 February 2022 10:00 (50 minutes)

We will define what a Poisson structure on a differentiable stack is, the latter being seen as an equivalence class of Lie groupoids up to Morita equivalence, and explain why the notion makes sense, as well as those of vector fields and poly vector fields over a differentiable stack. Joint work with Bonechi, Ciccoli and Xu.

Presenter: LAURENT-GENGOUX, Camille

Contribution ID: **3** Type: **not specified**

m-shifted symplectic Lie groupoids

Monday, 7 February 2022 11:20 (50 minutes)

Presenter: CUECA, Miquel

Contribution ID: **4** Type: **not specified**

Diffeological groupoids and their Lie algebroids

Monday, 7 February 2022 17:00 (50 minutes)

Presenter: BLOHMANN, Christian

Contribution ID: **5** Type: **not specified**

Lie groupoid cohomology relative to a Lie subgroupoid

Monday, 7 February 2022 17:50 (50 minutes)

Presenter: SALAZAR, Maria Amelia

Contribution ID: **6** Type: **not specified**

Minicourse on stacks in algebraic geometry vs differential geometry - session 2

Tuesday, 8 February 2022 09:00 (50 minutes)

Presenter: SAFRANOV, Pavel

Contribution ID: **7** Type: **not specified**

Lie groupoids and differential equations

Tuesday, 8 February 2022 10:00 (50 minutes)

Presenter: BISCHOFF, Francis

Contribution ID: **8** Type: **not specified**

Deformations of symplectic foliations

Tuesday, 8 February 2022 11:20 (50 minutes)

Presenter: ZAMBON, Marco

Contribution ID: **9** Type: **not specified**

Dirac reduction and shifted symplectic geometry

Tuesday, 8 February 2022 17:00 (50 minutes)

We introduce a notion of reduction of Dirac realizations induced by a submanifold of the base and give an interpretation in shifted symplectic geometry. It yields, in particular, to a notion of symplectic (resp. quasi-Hamiltonian) reduction where the level can be a submanifold of the dual of the Lie algebra (resp. the group) rather than a point, and explains some disparate constructions in symplectic geometry. This is joint work with Ana Balibanu and Peter Crooks.

Presenter: MAYRAND, Maxence

Contribution ID: **10** Type: **not specified**

Classification of stacky vector bundles

Tuesday, 8 February 2022 18:00 (50 minutes)

This is report on a joint project with my student J. Desimoni, where we classify stacky vector bundles by the categorified Grassmanian, the differentiable 2-stack represented by the general linear 2-groupoid.

Presenter: DEL HOYO, Matias

Contribution ID: **11** Type: **not specified**

Weil algebras for double Lie algebroids

Wednesday, 9 February 2022 09:00 (50 minutes)

Presenter: MEINRENKEN, Eckhard

Contribution ID: **12** Type: **not specified**

Differentiation of Lie n-groupoids

Wednesday, 9 February 2022 10:00 (50 minutes)

As a Lie n-groupoid is an atlas for an n-stack in differential geometry, one expects that their differentiation should be the tangent complex of the n-stack carrying a Lie n-algebroid structure. However, an explicit differentiation, like that for Lie groupoid, seems to be missing. Inspired by Severa's idea of an infinitesimal object, we perform (spending a lot of years fixing holes :) an explicit differentiation, and reach the tangent complex with a Lie n-algebroid structure. This is a joint work with Du Li, Rui Fernandes, Leonid Ryvkin and Arne Wessel.

Presenter: ZHU, Chenchang

Contribution ID: **13** Type: **not specified**

Poisson structures from corners of field theories

Thursday, 10 February 2022 09:00 (50 minutes)

Presenter: CATTANEO, Alberto

Contribution ID: **14** Type: **not specified**

Quantization and integrability

Thursday, 10 February 2022 10:00 (50 minutes)

Presenter: CABRERA, Alejandro

Contribution ID: **15** Type: **not specified**

The Fukaya category of the log symplectic sphere

Thursday, 10 February 2022 11:20 (50 minutes)

Presenter: KIRCHHOFF-LUKAT, Charlotte

Contribution ID: **16** Type: **not specified**

Some remarks on Lagrangian intersections in the algebraic case (Joint talk with Global Poisson Webminar)

Thursday, 10 February 2022 17:00 (1h 30m)

Some years ago, in joint work with B. Fantechi, we constructed brackets on the higher structure sheaves of Lagrangian intersections, and compatible Batalin-Vilkovisky operators, when certain orientations are chosen (see our contribution to Manin's 70th birthday festschrift). This lead to a de-Rham type cohomology theory for Lagrangian intersections. In the interim, much progress has been made on a better understanding of the origin of these structures, and some related conjectures have been proved. We will explain some of these results.

This is a joint talk with Global Poisson Webminar

Presenter: BEHREND , Kai

Contribution ID: **17** Type: **not specified**

The linear model around Poisson submanifolds.

Friday, 11 February 2022 09:00 (50 minutes)

We built a local model around Poisson submanifolds, which we have shown to generalize Vorbojev's local model around symplectic leaves. A normal form theorem holds in many situations, e.g., Poisson manifolds integrable by proper groupoids, Hamiltonian quotients, etc. This is joint work with Rui Loja Fernandes.

Presenter: MARCUT, Ioan

Contribution ID: **18** Type: **not specified**

Compatibility of Nijenhuis operators with various structures

Friday, 11 February 2022 10:00 (50 minutes)

This is a report on recent results involving the compatibility of Nijenhuis operators with various structures (e.g. Poisson groupoids, Dirac Structures, Courant algebroids) by means of an associated connection-like object. An interesting application is the study of holomorphic structures via their underlying real objects. Also, the investigation of Nijenhuis structures compatible in a suitably sense with Courant algebroids leads to a (not fully understood yet) relation with Kähler geometry.

Presenter: DRUMMOND, Thiago

Contribution ID: **19** Type: **not specified**

Symplectic gerbes or symplectic foliations

Friday, 11 February 2022 11:20 (50 minutes)

Presenter: CRAINIC, Marius