

# Higher Geometric Structures along the Lower Rhine XX

16-17 April 2026 – Utrecht University

## Location

Talks take place in Utrecht

The Netherlands ([Travel Directions](#))

## Program

### 16 April in [Cosmos](#)

14:00 - 15:00: Marvin Dippell

15:15 - 16:15: Francesca Pratali

16:15 - 16:45: Coffee break

16:45 - 17:45: David Carchedi

18:30: Conference Dinner

### 17 April in [Cosmos](#)

09:45 - 10:00: Coffee

10:00 - 11:00: Qingyuan Bai

11:15 - 12:15: Lucas Dahinden

12:15 - 14:00: Lunch break in Library [HFB](#)

14:00 - 15:00: Grégoire Marc

15:00 - 15:30: Coffee break

15:30 - 16:30: Martin Frankland

## Registration

[Register](#) for this workshop.

## Description

This is the twentieth in a series of short workshops jointly organized by geometers and topologists from Bonn, Nijmegen and Utrecht, all situated along the [Lower Rhine](#). The focus lies on the development and application of new structures in geometry and topology such as Lie groupoids, differentiable stacks, Lie algebroids, generalized complex geometry, topological quantum field theories, higher categories, homotopy algebraic structures, higher operads, derived categories, and related topics.

## Previous Meetings

[I](#) (MPIM Bonn), [II](#) (Nijmegen), [III](#) (Utrecht), [IV](#) (MPIM Bonn), [V](#) (Nijmegen), [VI](#) (Utrecht), [VII](#) (Leuven), [VIII](#) (MPIM Bonn), [IX](#) (Nijmegen), [X](#) (Utrecht), [XI](#) (MPIM Bonn), [XII](#) (Nijmegen), [XIII](#) (Utrecht), [XIV](#) (MPIM Bonn), [XV](#) (Nijmegen), [XVI](#) (Utrecht), [XVII](#) (MPIM Bonn), [XVIII](#) (Nijmegen), [XIX](#) (Cologne).

## Organizers

The workshop series is organized by [Christian Blohmann](#), [Marius Crainic](#), [Ioan Mărcuț](#), [Ieke Moerdijk](#) and [Steffen Sagave](#)

## **Titles and abstracts**

### **Qingyuan Bai**

*Title:* Invertible intervals

*Abstract:* tba

### **David Carchedi**

*Title:* 3D Chern-Simons Theory, Higher Gerbes, and Shifted Geometric Quantization

*Abstract:* tba

### **Lucas Dahinden**

*Title:* Stability of Topological Entropy for Reeb Flows in Dimension Three

*Abstract:* We are interested in the topological entropy (a measure of complexity) of flows, and whether it can significantly drop by perturbation of the flow. Entropy is known to be unstable for general flows, so we focus on the special case of Reeb flows in three dimensions. We reduce the flow to a surface map by a global surface of section. Using this, we identify a family of linked periodic orbits that generate entropy. Finally, we use pseudoholomorphic curve techniques to show that these links are stable under perturbation. Ultimately, we show that entropy is generically lower semi-continuous in  $C^0$ -topology. In the presentation, we focus on the geometric transformation of the problem.

This is joint work with Marcelo Alves, Matthias Meiwes and Abror Pirnapasov

### **Marvin Dippell**

*Title:* Quantization and Reduction of Linear Poisson Structures

*Abstract:* After giving a short introduction to formal deformation quantization I will present some result on homogeneous star products quantizing linear Poisson structures. In particular, I will show that these homogeneous star products are in one to one correspondents to the second Lie algebroid cohomology of the underlying Lie algebroid. For this, a recently discovered deformation retract for Hochschild cohomology will be crucial. If time permits, I will also present a classification for homogeneous star products compatible with coisotropic reduction. For homogeneous star products this will prove that quantization commutes with reduction.

### **Martin Frankland**

*Title:* Enriched model categories and the Dold-Kan correspondence

*Abstract:* If we start with a model category enriched in simplicial abelian groups and we normalize each hom complex, what kind of structure do we obtain? In joint work with Arnaud Ngopnang Ngompé, we show that changing the enrichment along a weak monoidal Quillen pair results in a "weak" enriched model category. The main issue is that we lose the tensoring and cotensoring, but we retain a weak form thereof.

### **Grégoire Marc**

*Title:* A higher Mackey functor description of algebras over an N-infinity operad".

*Abstract:* N-infinity operads are an equivariant analogue of E-infinity operads and encode norms in addition to the classical commutative operations encoded by an E-infinity operad. Every N-infinity operad can be associated with a transfer system T, leading to a notion of (higher) T-Mackey functors. In this talk, after introducing these notions, I will sketch the construction of an equivalence between algebras over an N-infinity operad O and the corresponding infinity category of T-Mackey functors.

### **Francesca Pratali**

*Title:* Localization of  $\infty$ -operads

*Abstract:* Operads are combinatorial structures encoding categories of algebras. In modern homotopy theory, where categories are replaced by  $\infty$ -categories, operads are replaced by their homotopy-coherent counterparts,  $\infty$ -operads. A natural way  $\infty$ -operads arise is via (derived) localization of strict operads, that is, by freely inverting a specified class of morphisms in a homotopy-coherent manner.

In this talk, I will show that every  $\infty$ -operad arises as a localization of a strict operad, and that this construction induces in fact an equivalence of homotopy theories, generalizing analogous results for  $\infty$ -categories due to Joyal-Stevenson and Barwick-Kan. A key ingredient in the proof is using the dendroidal formalism for  $\infty$ -operads, based on a certain category of trees and its combinatorics. Part of this work is joint with Arakawa and Carmona.