

**Talk on September 26, 2024, 11:30 am**

Speaker: **Prof. Madeleine Jotz, Universität Würzburg**

Title: A geometrisation of  $\mathbb{N}$ -manifolds

Abstract:

Lie  $2$ -algebroids are geometrised by linear Courant algebroids, while symplectic Lie  $2$ -algebroids correspond to mere Courant algebroids. These correspondences due to Li-Bland, Severa and Roytenberg rely on the underlying equivalence of  $[2]$ -manifolds with metric double vector bundles. The latter yields a dictionary between graded geometric structures on  $[2]$ -manifolds, like homological vector fields, Poisson and symplectic structures, and corresponding 'classical geometric' structures on the corresponding metric double vector bundles.

Metric double vector bundles dualise to double vector bundles equipped with a (signed) involution. The latter can then be understood as  $S_2$ -symmetric double vector bundles -- recovering Pradines' 'inverse' symmetric double vector bundles.

Similarly, positively graded manifolds of arbitrary degree  $n$  are equivalent to  $n$ -fold vector bundles equipped with a (signed)  $S_n$ -symmetry.

This talk sketches roughly this correspondence and then focuses on explaining in this context the geometrisation of symplectic Lie  $2$ -algebroids.

This work is partly joint with Malte Heuer.