Ioan Mărcuţ

Local normal form theorems in differential geometry are often the manifestation of rigidity (in the sense of "lack of deformations") of certain structures. For example, the existence of local Darboux coordinates in symplectic geometry is related to the fact that, locally, symplectic structures have no deformations. We formalized this phenomenon into a "meta-theorem" on rigidity of solutions to a PDE, under the action of a closed pseudogroup of symmetries. The result is of the form: “infinitesimal tame rigidity” implies “tame rigidity”, and is proven using the Nash-Moser fast convergence method. Several classical theorems fit in out setting: e.g. the Newlander-Nirenberg theorem in complex geometry, Conn’s theorem in Poisson geometry.

Bruno Stonek

I will introduce higher topological Hochschild homology (THH), i.e. the tensor $X\otimes R$ of a space X with an E_∞-ring spectrum R. I will explain how it looks like for the case of KU, the periodic complex K-theory spectrum, particularly when the space is a torus or a sphere. These computations showcase some interesting phenomena about KU, namely: it behaves like a Thom spectrum to the eyes of higher THH, it satisfies the conclusion of McCarthy-Minasian's interpretation of the Hochschild-Kostant-Rosenberg theorem, and $-\otimes KU$ takes equivalences-after-one-suspension to equivalences (example: torus~wedge of spheres).

Grégory Ginot

In this talk, we will describe a higher generalization of the center of the universal enveloping algebra of a matrix Lie group as well as the Hochschild cohomology of universal enveloping algebra. We will relate this to factorization algebra and use it to explain the large N limit of those invariants when, for instance, Sl_N embeds into GL_N.

Jose Manuel Moreno Fernández

I will explain how L-infinity structures on the rational homotopy groups relate to higher Whitehead products, sketch how A-infinity structures in cohomology algebras relate to Massey higher products (no need for rational coefficients here), and give an extension of the Milnor-Moore theorem for rational spaces to the infinity-algebras setting.
Some of the results are based on joint works with F. Belchí, U. Buijs and A. Murillo.

Francesco Cattafi

Abstract: A Γ-structure on a manifold is a maximal atlas whose changes of coordinates take values in a Lie pseudogroup Γ on $\mathbb{R}^n$. As a special case, one can consider a Γ defined starting from a Lie subgroup $G \subseteq GL(n,\mathbb{R})$; in this case, a Γ-structure coincides with the standard notion of an integrable G-structure. For instance, for G the symplectic group, one obtains symplectic structures.
In this talk we are going to review these notions and present a new characterisation of formal integrability in the setting of Γ-structures. This will be obtained by introducing the concept of principal Pfaffian bundle and studying its prolongations to higher orders; we draw inspiration from similar results for G-structures, which we are going to recover. This is joint work with Marius Crainic.

Hadrian Heine

We construct real K-theory of Waldhausen infinity-categories with genuine duality via the S^1,1-construction.
We characterize real K-theory as the universal theory satisfying additivity.
Moreover we promote real K-theory to a genuine C_2-spectrum and endow real K-theory with multiplicative structure.
This is joint work with Markus Spitzweck and Paula Verdugo.