

Regensburg days on non-archimedean geometry, 2016

	Wednesday, 13 July	Thursday, 14 July
9:00 –10:00		Tony Yue Yu
10:00–10:30	Coffee	Coffee
10:30 – 11:30	Vladimir Berkovich	Amaury Thuillier
14:00 – 15:00	Jérôme Poineau	Antoine Ducros
15:00–15:30	Coffee	Coffee
15:30 – 16:30	Joe Rabinoff	
19:00	Dinner at Bischofshof am Dom	

There will be a dinner on Wednesday, 13 July at 19:00 in the restaurant Bischofshof am Dom (the address is Krauterermarkt 3, Regensburg). It is located on a place at the north side of the cathedral.

Abstracts

Vladimir Berkovich: The de Rham theorem for non-Archimedean analytic spaces

In my work in progress on complex analytic vanishing cycles for formal schemes, I've defined integral "etale" cohomology groups of a compact strictly analytic space over the field of Laurent power series with complex coefficients. These are finitely generated abelian groups provided with a quasi-unipotent action of the fundamental group of the punctured complex plane, and they give rise to all l-adic etale cohomology groups of the space. After a short survey of this work, I'll explain a theorem which, in the case when the space is rig-smooth, compares those groups and the de Rham cohomology groups of the space. The latter are provided with the Gauss-Manin connection and an additional structure which allow one to recover from them the "etale" cohomology groups with complex coefficients.

Antoine Ducros: Families of Berkovich spaces.

I will present various results around relative properties in non-archimedean analytic geometry, including the notion of flatness and of quasi-smoothness in this context, the study of "generic fibers", and the description of the locus of relative validity of some usual properties (like being Cohen-Macaulay, Gorenstein, Complete intersection, regular...).

Jérôme Poineau: Radii of convergence of p-adic differential equations and ramification.

Let $f : Y \rightarrow X$ be a finite étale morphism of quasi-smooth p-adic Berkovich curves. We will explain how to relate the radii of convergence of a differential equation F on Y to that of its push-forward f_*F on X . When F is the trivial differential equation, we use results of M. Temkin to prove that the radii of the push-forward at a point x in X of type 2 are the jumps of the upper ramification filtration of the various extensions $H(y)/H(x)$, where y runs through the preimages of x . This is joint work with Velibor Bojkovic.

Joe Rabinoff: Faithful tropicalizations of abelian varieties.

We study combinations of theta functions whose valuations faithfully represent the skeleton of an abelian variety. In particular, we show that one can "see" the skeleton of a canonically embedded Kummer surface as a polyhedral 2-sphere in 3-space, answering a question of Bernd Sturmfels. This is joint work with Tyler Foster, Farbod Shokrieh, and Alejandro Soto.

Amaury Thuillier: On a theorem of Florent Martin.

I will sketch a proof of Florent Martin's theorem about tropicalization of closed subspaces of affinoid spaces using Gröbner like techniques.

Tony Yue Yu: Gluing holomorphic cylinders

I will talk about a gluing formula for counting holomorphic cylinders. The formula roughly says that cylinders can be glued together to form longer cylinders, and the number of longer cylinders equals the product of the numbers of shorter cylinders. Our approach uses Berkovich geometry, deformation theory and several ideas from Gromov-Witten theory.