

1104-14-167

**Maria Angelica Cueto\*** ([macueto@math.columbia.edu](mailto:macueto@math.columbia.edu)), Mathematics Department - Columbia University, 2990 Broadway, MC 4403, New York, NY 10027, and **Mathias Haebich** and **Annette Werner**. *Faithful tropicalization of the Grassmannian of planes.*

The purpose of this talk is to explain the close connection between analytification of algebraic varieties over non-Archimedean fields and tropical geometry, and how we can use the combinatorics of tropical varieties to understand the topology of analytic spaces. More precisely, we show that the tropical projective Grassmannian of planes is homeomorphic to a closed subset of the analytic Grassmannian in Berkovich's sense by constructing a continuous section to the tropicalization map.

Our proof is constructive and it relies on the combinatorial description by Speyer-Sturmfels of the tropical Grassmannian (inside the split torus) as a space of phylogenetic trees. We also show that both sets have piecewise linear structures that are compatible with our homeomorphism and characterize the fibers of the tropicalization map as affinoid domains with a unique Shilov boundary point. Our homeomorphism identifies each point in the tropical Grassmannian with the Shilov boundary point on its fiber. Time permitted, we will discuss the combinatorics of the aforementioned space of trees inside tropical projective space. (Received August 30, 2014)