On definable groups in topological fields equipped with a generic derivation

Françoise Point
U Mons

The theory CODF of closed ordered differential fields has been introduced by M. Singer in 1978. A model of CODF is a real-closed field equipped with a "generic" derivation. We will describe finite-dimensional groups definable in models of CODF. We will first show that such group Γ definably embeds in a semi-algebraic group G. Then we will equipp G with a structure of a Nash D-group such that Γ is definably isomorphic to the group of sharp points of this D-group. Then we will show how to adapt this setting to certain "tame" topological fields (of characteristic 0) equipped with a generic derivation.

This is a joint work with K. Peterzil and A. Pillay.