Subanalytic topologies and applications to filtered $\mathcal{D}$-modules
Tianjin 24/6–28/6 2013

Pierre Schapira, University of Paris 6

This is a joint work with Stéthane Guillermou.
The subanalytic topology $M_{\rm sa}$ on a real manifold M is a Grothendieck topology for which the open sets are the relatively compact subanalytic open subsets and the coverings are the finite coverings. On $M_{\rm sa}$, one defines (among other sheaves) the sheaf $C^{\infty,t}_{M_{\rm sa}}$ of C^∞-functions with temperate growth. Then on a complex manifold X, using the Dolbeault complex, one gets the sheaf $\mathcal{O}^t_{X_{\rm sa}}$ of holomorphic functions with temperate growth (see [KS01]). By refining the topology $M_{\rm sa}$, one can endow $C^{\infty,t}_{M_{\rm sa}}$, hence $\mathcal{O}^t_{X_{\rm sa}}$, with a filtration (objects of the derived categories of filtered sheaves). Using the Riemann-Hilbert correspondence, one may endow functorially the regular holonomic $\mathcal{D}$-modules with a filtration (in the derived sense) (see [GS12]).

[GS12] S. Guillermou and P. Schapira, *Subanalytic topologies I. Construction of sheaves,* arXiv:math.arXiv:1212.4326
Subanalytic topologies II. Filtrations, In preparation

[KS01] M. Kashiwara and P. Schapira, *Indsheaves,* Astérisque **271** (2001).