SOBOLEV SHEAVES ON THE SUBANALYTIC TOPOLOGY

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ABSTRACT. Sheaves on manifolds are good objects to deal with local problems, but from the point of view of algebraic geometry, the usual topology contains many open sets of pathological nature, which makes the family of open subanalytic sets (or definable sets in some fixed o-minimal structure) a good candidate for replacing the usual topology. On the subanalytic topology, sheaves that are defined by functional spaces are very important in the study of irregular holonomic $\mathcal{D}$-modules, but unfortunately many functional spaces are not of local nature. In this talk, we present G.Lebeau's method of sheafying (in the derived sense) the Sobolev spaces H^s on the subanalytic topology for $s \leqslant 0$, and we present a method to construct this sheaves (in the usal sense) for $s \geqslant 0$ in dimension 2, based on the geometric nature of open subanalytic sets in $\mathbb{R}^2$. We give also a possible construction for the higher dimensional case.