

On the Convenient Category of Diffeological Spaces

Introduce:

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Abstract:

Diffeological spaces are a class of geometric structures that generalize the notion of smooth manifolds, in this sense, they provide an instance of a "generalized space".

They consist of a set X equipped with a collection of "plots" — maps from open Euclidean subsets to X — satisfying three simple axioms.

While an individual diffeological space can be much worse than a smooth manifold, the category DiffSpaces of all diffeological spaces enjoys many desirable properties not possessed by the category of smooth manifolds.

The aim of this talk is to give a quick review of the notions of diffeological space, concrete site, and concrete sheaf.

We will show that DiffSpaces is indeed a category of "concrete sheaves on a concrete site" — also known as "generalized spaces" — and we will employ the rest of our time to exhibit the properties owned by this class of categories.

The upshot is that any category of concrete sheaves on a concrete site — and thus the category of diffeological spaces — turns out to be a quasitopos with all limits and colimits.

Seminario

Martedì 30 Gennaio 2018

Aula 1, ore 10.30

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