

CONCRETE SHEAVES AND CONTINUOUS SPACES

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In algebraic topology and differential geometry, most categories lack some good "convenient" properties like being cartesian closed, having pullbacks, pushouts, limits, colimits... We will introduce the notion of *continuous spaces* which is more general than the concept of topological manifolds but more specific when compared to topological spaces. After that, it will be shown that the category of continuous spaces have "convenient" properties we seek. For this, we first define concrete sites, concrete sheaves and say that a generalized space is a concrete sheaf over a given concrete site. Then it will be proved that a category of generalized spaces (for a given concrete site) has all limits and colimits. At the end, it will be proved that the category of continuous spaces is actually equivalent to the category of generalized spaces for a specific concrete site.

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