

Membranes and higher groupoids

Abstract:

It is well known that strict higher groupoids describe only rather special ("semiabelian") homotopy types. On the other hand, the geometric idea of higher surface holonomy (as data corresponding to a piece of a submanifold and independent on its parametrization) seems to ask for such a strict target.

In the talk I will discuss the dg-Lie algebra F carrying the universal translation invariant flat dg-connection on \mathbf{R}^n , and the universal strict higher groupoid G associated to this dg-Lie algebra. The structure of the corresponding Lie algebra (semiabelianization of F) can be described precisely. Geometric membranes in \mathbf{R}^n are then represented as morphisms of the higher groupoid G .