

**Meeting:** 1001, Evanston, Illinois, SS 18A, Special Session on Applications of Motives

1001-14-127            **Mikhail Kapranov\*** ([mikhail.kapranov@yale.edu](mailto:mikhail.kapranov@yale.edu)). *Floer homology of ind-schemes*. Preliminary report.

This is a joint work with S. Arkhipov. We construct a certain category of ind-schemes that possess a class of sub-schemes of possibly infinite dimension and codimension but which are commensurable among each other in a natural sense. Examples include projectivizations and Grassmannizations of Tate vector spaces such as  $C((t))$ , algebro-geometric versions of the semiinfinite flag spaces and certain versions of Givental models for loop spaces of projective varieties.

Locally such ind-schemes can be represented as ind-pro-limits of schemes of finite type with ind-pro-diagram having all squares Cartesian. Informally, the semiinfinite (Floer) homology of such an ind-scheme should then be defined as the double inductive limit of the homology groups of the terms of the diagram with respect to both direct and inverse image maps in the homology (the latter changing the degree). In various situations this idea can be given a precise sense so we get an algebro-geometric definition of the Floer homology which is compatible with the more analytic definitions considered previously. (Received August 19, 2004)