998-16-182 **Alex Martsinkovsky*** (alexmart@neu.edu) and **Anatoly Vlassov** (anatoli_vlassov@mail.ru). *Monoidal structures on representations of algebras.*Preliminary report.

This is joint work in progress with Anatoly Vlassov. To study monoidal structures on representations of algebras we introduce central linear structures, defined by the requirement that the forgetful functor to the coefficients be monoidal. This is a wide class: it includes, in particular, finite group, Lie groups, and Lie algebras. Our main result shows that there is a functorial bijection between the isoclasses of such structures and isoclasses of bialgebra structures on the algebra. We also look at an important non-central example: the componentwise tensor product for representations of a nonlocal quiver. For any monoidal structure we introduce a new concept of a character. This extends the classical definition of a group character. Time permitting, I will illustrate these concepts on our "toy model": finite-dimensional modules over a polynomial ring in one variable. We shall see a euristic explanation, from a deformation-theoretic point of view, of the similarity between the Clebsch - Gordan decompositions for the group-like and the primitive products. We shall then observe how the characters for the primitive product allow a quick and simple derivation of the Weyl character formula for SL(2) and recover Chebysheff polynomials as generalized characters. (Received February 25, 2004)