1154-82-1327   **Kang Lu*** (`lukang@iupui.edu`), LD 270 402 N Blackford St., Indianapolis, IN 46202, and **Evgeny Mukhin**. *On the $\mathfrak{gl}_{1|1}$ supersymmetric XXX spin chains.* Preliminary report.

We study the $\mathfrak{gl}_{1|1}$ supersymmetric XXX spin chains. We show that there exists a bijective correspondence between common eigenvectors (up to proportionality) of Bethe subalgebra in any cyclic tensor product of polynomial evaluation modules of the $\mathfrak{gl}_{1|1}$ Yangian and monic divisors of an explicit polynomial written in terms of the Drinfeld polynomials. In particular our result implies that each common eigenspace has dimension 1. We also show that when the tensor product is irreducible, then all eigenvectors can be constructed using Bethe ansatz and express the transfer matrices associated to symmetrizers and anti-symmetrizers in terms of the first transfer matrix and the center of the Yangian. (Received September 14, 2019)