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Tamanna chatterjee* (tamanna.chatterjee23@gmail.com), 4723 Alvin dark avenue, Apartment 4, 4723 Alvin dark avenue, Apartment 4, Baton rouge, LA 70820-3899. *Study of parity sheaves arising from graded Lie algebras*. Preliminary report.

Let G be a complex, connected, reductive, algebraic group, and $\chi : \mathbb{C}^\times \rightarrow G$ be a fixed cocharacter that defines a grading on \mathfrak{g} , the Lie algebra of G . Let G_0 be the centralizer of $\chi(\mathbb{C}^\times)$. Here I will talk about G_0 -equivariant parity sheaves on the n -graded piece, \mathfrak{g}_n . I will define parabolic induction and restriction in graded setting. We will dive into the results of Lusztig in characteristic 0 in the graded setting. Under some assumptions on the field \mathbb{k} and the group G we will recover some results of Lusztig in characteristic 0. These assumption together with Mautner's cleanness conjecture will play a vital role. The main result is that every parity sheaf occurs as a direct summand of the parabolic induction of some cuspidal pair. Lusztig's work on \mathbb{Z} -graded Lie algebras is related to representations of affine Hecke algebras, so a long term goal of this work will be to interpret parity sheaves in the context of affine Hecke algebras. (Received May 24, 2021)