Abstract Submitted
for the APR20 Meeting of
The American Physical Society

Asymptotic symmetries and charges at spatial infinity in general relativity[1] IBRAHIM SHEHZAD, KARTIK PRABHU, Cornell University — We analyze asymptotic symmetries at spatial infinity in four-dimensional asymptotically flat spacetimes and derive formulae for the charges corresponding to asymptotic supertranslations and Lorentz symmetries using the covariant phase space formalism. Contrary to previous analyses of this problem, we do not impose restrictions on the conformal factor that break the Spi group of asymptotic symmetries to a smaller subgroup. For this reason, our Lorentz charge expression generalizes older expressions in the literature. We expect our expression for the Lorentz charge to be more suitable for comparing with the Lorentz charges defined at null infinity and thereby relating asymptotic symmetries defined on past and future null infinity to those at spatial infinity.

[1]Supported in part by NSF grant PHY-1707800 to Cornell University.

Ibrahim Shehzad
Cornell University

Date submitted: 01 Apr 2020 Electronic form version 1.4