Conservation laws for waves on a string from isometries and conformal isometries of the Minkowski metric[1] BRANDON MILLER, BALRAJ MENON, University of Central Arkansas — Noether's theorems describe the interplay between variational symmetries (symmetries of the action functional) and local conservation laws admitted by a physical system. In Lagrangian field theories defined on a differentiable manifold $\mathcal{M}$ endowed with a metric g, the variational symmetries are intimately tied to the isometries of the metric g. We highlight this connection by relating the variational symmetries of waves on a string to the isometries and conformal isometries of the Minkowski metric. The associated local conservation laws and conserved quantities for this physical system are determined and their physical significance discussed. The geometric nature of these conservation laws are further elucidated by discussing their Poisson bracket formulation in the Hamiltonian framework.

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