

In the context of Yang-Mills theories, we show that a subclass of gauge symmetries should be considered as global symmetries. These symmetries act nontrivially on the vacuum and generate a moduli space of vacua. We show that the Lagrangian induces a metric on the vacuum moduli space, making it a Riemannian manifold. Geodesics of this manifold correspond to an important class of solutions of the theory, namely the electrostatic solutions. These results explain in a different way why global gauge symmetries should be considered as physical, and also leads to an extension of asymptotic symmetries inside the bulk.

(The talk is based on the paper arXiv:[1707.00006](https://arxiv.org/abs/1707.00006))