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Goofy Symmetries

Tuesday, September 23, 2025 9:30 AM (30 minutes)

I will discuss the recently discovered global goofy transformations. Originally, goofy transformations were identified in explicit discussions of the 2HDM, but their understanding is mandatory to describe the renormalization group (RG) fixed point structure of QFTs in general. Even though goofy transformations are explicitly broken by the canonical gauge-kinetic terms, the parameter relations they impose on the potential can be stable under RG running to all orders. To supplement this I will show some previously unknown all-order RG stable parameter relations of the 2HDM. I will also briefly discuss goofy transformations in other theories, including their application to the hierarchy problem in the Standard Model.

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