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Metaplectic Flavor symmetries from magnetized tori

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Modular flavor symmetries have gained significant attention as a promising method for predicting lepton mixing parameters. However, in a bottom-up approach, the lack of precise control over the parameters in the kinetic terms limits their predictability . To address this, we propose deriving the Yukawa couplings from an underlying geometry, specifically magnetized tori.

In this talk, we will present a systematic methodology to derive the Yukawa couplings based on magnetized tori, utilizing Euler's theorem. Furthermore, we will explore the modular transformations of these couplings to unravel the underlying modular flavor symmetry. Our findings demonstrate the emergence of the metaplectic modular groups as the flavor symmetry governing the system. Finally, we will discuss potential models that can be constructed using this approach

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