Applications of Field Theory to Hermitian and Non-Hermitian Systems



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Towards the Asymptotically Safe Landscape

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A consistent theory of quantum gravity needs to be able to incorporate the matter degrees of freedom present in our Universe, for example, the matter fields and symmetries of the Standard Model. In asymptotically safe quantum gravity, the key questions are for which matter content the interacting ultraviolet fixed point exists, and which low-energy matter interactions are connected to the ultraviolet fixed point. I will give a comprehensive overview of the status of these questions, in particular, highlighting recent results towards the ultraviolet completion of the Standard Model with asymptotically safe gravity and implications for dark matter models.

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