

# Rethinking asymptotic freedom

*Monday, 10 June 2019 10:00 (45 minutes)*

The renormalization-group flow of Higgs-Yukawa models with a non-Abelian gauge sector has been studied for several decades by adopting two simplifying assumptions: that the theory is perturbatively renormalizable and that all mass terms are negligible at high energies. Within this theoretical framework, total asymptotic freedom appears to be a rare phenomenon which severely constrains the matter content and the symmetry groups. We show how dropping the two above-mentioned assumptions allows to construct new large families of totally asymptotically free quantum field theories. The latter have strong predictive power and may thus find applications in physics beyond the standard model.

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