Our Team
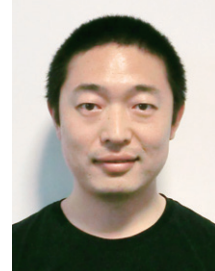
Feng Luo
Research Field: Theoretical Physics

Postdoc

My research interests are at the interface of theoretical particle physics and cosmology. I am especially interested in theoretical models with testable predictions, and I am studying how to describe various physical phenomena within a consistent framework. An attractive framework is supersymmetry, which provides one solution to several fundamental questions. In addition to the intrinsic elegance of the theory, supersymmetry is phenomenological attractive because we can now test it in the Larg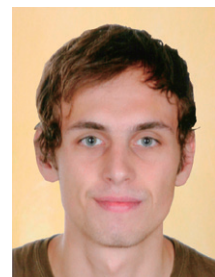e Hadron Collider and dark matter search experiments, as well as check it against cosmology including Big-Bang nucleosynthesis. I believe a thorough exploration of this framework can guide us to find a clearer path and new directions in looking for beyond the Standard Model physics.

Matthias Weissenbacher
Research Field: Theoretical Physics

Postdoc

My research interests lie in the field of string phenomenology, which connects the UV complete framework provided by Superstring theory to field theoretical models such as the Standard Model of particle physics and cosmology. The connection is established using "string effective actions," given by certain supergravity theories. Especially beneficial is the approach over F-theory, which is best accessed through eleven-dimensional supergravity and allows to deduce $4d$, $N=1$ supergravity theories that exhibit chiral spectra and exceptional gauge groups relevant for Grand Unified Theories. My current focus is on string theory induced α', g_s and Kaluza-Klein corrections to these supergravity theories. The study of the modified dynamics of these effective theories, especially the determination of their vacuum structure, is of crucial phenomenological importance and also of significant conceptual interest.