

▶ Mapping the landscape of quantum field theories

Quantum field theory is the theory that combines Einstein's theory of special relativity with quantum mechanics. It describes the physics of relativistic elementary particles, and underlies all known physical laws. This talk will describe recent progress toward the program of classifying and solving all possible quantum field theories. The program is based on the idea (originated by Ken Wilson) that quantum field theories are associated with renormalization group flows between conformally invariant quantum field theories (CFTs). Such theories are invariant under scale transformations and so-called special conformal transformations, in addition to the familiar Lorentz transformations of special relativity. This additional symmetry leads to a very rigid structure that makes it possible to study CFTs using purely algebraic techniques that do not depend on a weakly-coupled limit or a Lagrangian formulation. This talk will review this program for non-experts, and discuss some of the recent progress in the field.

▶ Markus Luty

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Born in Germany, emigrated to the US at age 1 and grew up in Salt Lake City, Utah. Father was a physicist. Long before I knew what physics was, I knew I wanted to be a physicist because my dad got to wear shorts to work, and his colleagues from all over the world came to our house for dinner and to discuss. Attended University of Utah as an undergraduate, University of Chicago for graduate school, where I studied under Yochiro Nambu. (He was the only physicist I never called by his first name.) I did postdoc positions at UC Berkeley and MIT, and then accepted a faculty offer at the University of Maryland. After 10 years there, I moved to UC Davis.

▶ Physics Colloquium

▶ Thursday, September 6, 2018

▶ 4:10PM at 316 Lewis Lab.

▶ Refreshments at 3:45PM