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The String Theory Landscape

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In recent years, it has become increasingly clear that string theory, our most promising framework for a unified theory of the fundamental interactions, admits a "landscape" of vacua permitting different laws of 4d physics. That is, although the underlying theory is unique, it admits a large number of metastable solutions manifesting different effective cosmological constants, low-energy gauge groups and matter contents, and so forth. I describe the theoretical evidence in favor of this picture, the close connection to ideas in inflationary cosmology, and the scenarios for 4d physics (including testable ideas about inflation and particle physics) that have resulted from this research.