

# Modular Space-time and Metastring Theory

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String theory is canonically accompanied with a space-time interpretation which determines S-matrix-like observables, and connects to the standard physics at low energies in the guise of local effective field theory. Metastring theory (developed by Laurent Freidel, Rob G. Leigh and Djordje Minic) is a reformulation of string theory which does not rely on an a priori space-time interpretation or a pre-assumption of locality. Metastring theory is formulated in such a way that stringy symmetries (such as T-duality) are realized linearly and it leads to a new quantum notion of space-time that we refer to as a quantum Lagrangian or equivalently a modular space-time. This concept embodies the standard tenets of quantum theory and implements in a precise way a notion of relative locality. The usual string backgrounds (non-compact space-time along with some toroidally compactified spatial directions) are obtained from modular space-time by a limiting procedure that can be thought of as a correspondence limit.