



MIAMI 2020 Physics Conference

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Talk Title: From Quantum Mechanics to Quantum Space-time and Beyond

Abstract: Starting from the well known facts about quantum mechanics I will introduce the concept of modular (quantum) space-time that underlies general quantum non-locality that is consistent with causality. Next, I will discuss a realization of quantum space-time in quantum field theory via the new concept of "metaparticles". Finally, I will discuss dynamical quantum space-time in quantum gravity, and present a new understanding of dark matter and dark energy in this new formulation of quantum gravity.