

## General Relativity and Quantum Cosmology

# Spacetime and Matter - a duality of partial orders

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A new kind of duality between the deep structures of spacetime and matter is proposed here, considering two partial orders which incorporate causality, extensity, and discreteness. This may have surprising consequences for the emergence of quantum mechanics, which are discussed.

Comments: Fourth prize in the 2009 FQXi essay contest "What is Ultimately Possible in Physics?"

Subjects: **General Relativity and Quantum Cosmology (gr-qc)**; General Physics (physics.gen-ph); Popular Physics (physics.pop-ph); Quantum Physics (quant-ph)

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