Shape Dynamics

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Abstract

Classical gravity can be constructed from relational first principles. These principles lead to a description of gravity in terms of the evolution of spatial conformal geometry. This "shape dynamics" description of gravity is locally indistinguishable from classical General Relativity. I this talk, I will introduce the shape dynamics description of classical gravity and explain why it is almost indistinguishable form General Relativity. I then assume the shape dynamics description of gravity to be the fundamental description of gravity. I then explain how the standard description of gravity in terms of spacetime geometry emerges from shape dynamics. I will conclude with the describing the present status of quantum shape dynamics and explain the differences with quantum General Relativity.