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Big Bounce and inflation from spin and torsion

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The conservation law for the total (orbital plus spin) angular momentum of a Dirac particle in the presence of gravity requires that spacetime is not only curved, but also has a nonzero torsion.
The coupling between the spin and torsion in the Einstein-Cartan theory of gravity generates gravitational repulsion at extremely high densities, which should prevent a singularity in a black hole and may create there a new, closed, baby universe.
We show that such a universe may form when a particular function of the scale factor and temperature is greater than some threshold, and that the universe can undergo one or more nonsingular bounces.
We also show that quantum particle production caused by an extremely high curvature near a bounce, and creating enormous amounts of matter, can generate a finite period of inflation.
This scenario has only one parameter, does not depend significantly on the initial conditions, does not involve hypothetical scalar fields, avoids eternal inflation, and predicts plateau-like inflation that is supported by the Planck observations of the cosmic microwave background.
This scenario also suggests that our Universe may have originated from a nonsingular Big Bounce in a black hole existing in another universe.

Presenter: POPLAWSKI, Nikodem

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