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## Non-relativistic gravity and its linearisation

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The theory of General Relativity (GR) stands on two of Einstein's most celebrated ideas: the Equivalence Principle and the statement that "gravity is geometry". The former implements Special Relativity (SR) and forces the geometry of spacetime to be Lorentzian, thus turning the previous statement into "gravity is Lorentzian geometry". It may not be obvious that these two ideas, yet closely related, are completely independent. Indeed, if willing to give up SR, one could in principle require that spacetime exhibit a local symmetry other than Lorentzian, and still work out a geometric theory of gravity. For instance, imposing local Galilean symmetry leads to Newton-Cartan geometry, pioneered by É. Cartan in 1923. The result is a non-relativistic geometric theory of gravity.

In this work we study the recently discovered covariant formulation of non-relativistic gravity (NRG), obtained

Building on this knowledge, and in analogy with the obtention of gravitational waves as a solution to the

### Field of study

Quantum Physics

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