

From Non-relativistic to Post-Newtonian Gravity

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In recent years a covariant 1/c-expansion of general relativity, known as non-relativistic gravity, has been developed. This new expansion has many interesting prospects but much is still unknown about it. One thing that remains unclear is what connection, if any, it has to the post-Newtonian approximation. So far, Non-relativistic gravity is believed to be a more general approximation that under certain simplifying assumptions becomes equivalent to the post-Newtonian approximation. In the talk I will explain why this is believed to be true and I will describe some of the efforts that my supervisor Jelle Hartong and I are making to validate this. Furthermore, I will discuss how non-relativistic gravity might be able to improve upon certain aspects of the post-Newtonian approximation if a connection between them is made.

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Track Classification: Student Talks