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# Equation of state for neutron stars employing chiral interactions within the Green's function approach

The reach for a reliable microscopic description of infinite nuclear matter is a fundamental task for theoretical nuclear physics. Successfully completing this task can have great impact on the comprehension we have of exotic states of matter, from heavy neutron-rich nuclei to the equation of state of neutron star matter. In this talk I will present the Self-consistent Green's function method as a convenient way to investigate the properties of infinite nuclear matter from first principles employing full chiral interactions. We will see how chiral potentials, built to reproduce radii or binding energies of light nuclei, predict both microscopic and thermodynamical properties of nuclear matter. Based on these microscopic calculations I will try to put nuclear physics constraints on both the zero and finite-temperature equation of state for neutron star matter.

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