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Pulsars spin-up: a semi-analytical approach

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Pulsars are powerful probes of our universe: thanks to their extraordinary long-term rotational stability and their fast rotation, they allow extremely precise timing measurements. However, the physics behind their spins and magnetic fields evolution is still poorly understood. A particular interest resides in the process of spin-up: neutron stars in binary systems
can be spun-up by accreting matter from the companion. The correct modelling of these processes is of fundamental importance in order to accurately reproduce the observed population of pulsars.
I will talk about how we implemented the evolution of spins and magnetic fields of neutron stars in SEVN, a C++ based binary population synthesis code, focusing on the main results and discussing the main criticalities of this approach.

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