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Population synthesis study of the Gaia single and binary white dwarf population within 100 pc (poster pitch)

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White dwarfs and binary stars can provide a wealth of information about the origin and evolution of the Galaxy and its constituents. Thanks to Gaia, we now have astrometric and photometric data from an immense number of white dwarfs previously unknown, and the number of binary systems has also increased exponentially. Moreover, the completeness of such systems to a distance of 100 pc is higher than 95%. To understand their physics, we are simulating the different Galactic populations of binary systems that contain at least one white dwarf. To that end we use a Monte Carlo code together with a stellar evolutionary code conveniently adapted to cover a wide range of stars from all ages, masses and metallicities. Different physical processes such as mass transfer, common envelope evolution, collisions or tidal interactions are considered, which can give us a hint about the formation history and evolution of the observed stars. The ultimate end is to compare the outcome of the simulations with the nearly complete observed Gaia samples in the Solar Neighborhood to constrain current evolutionary models.

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