# White Dwarf Binaries as Gravitational Wave sources

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Motivation : Modelling the **Gravitational Wave (GW)** background from **Binary White Dwarfs (BWDs)** within the **LISA** sensitivity range, using **COMPAS** for population modeling in the Milky Way. Various **evolutionary scenarios** and **initial parameters** are explored to assess the GW background's sensitivity to binary assumptions and potential constraints on binary evolution from LISA observations.

Results : The **BWD population in the Milky Way over 10 Gyrs**, assuming **constant SFR**, is calculated at 10^8 , with 10^7 **in the LISA** range. Gravitational wave amplitudes are derived using the **quadrupole formula**, and **effective strain** is evaluated across BWD populations under different **CE prescriptions**, varying by lambda values. **Higher lambda values indicate more efficient CE ejection**, impacting binary counts and strain in the LISA range. Galactic BWDs contribute to the GW background, offering insights into tight BWD statistics and constraints on binary evolution.
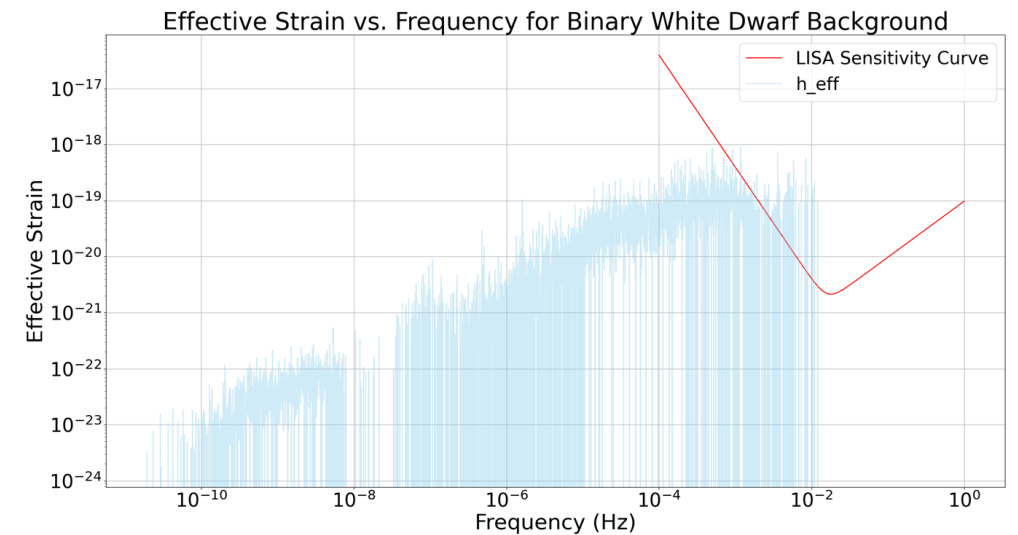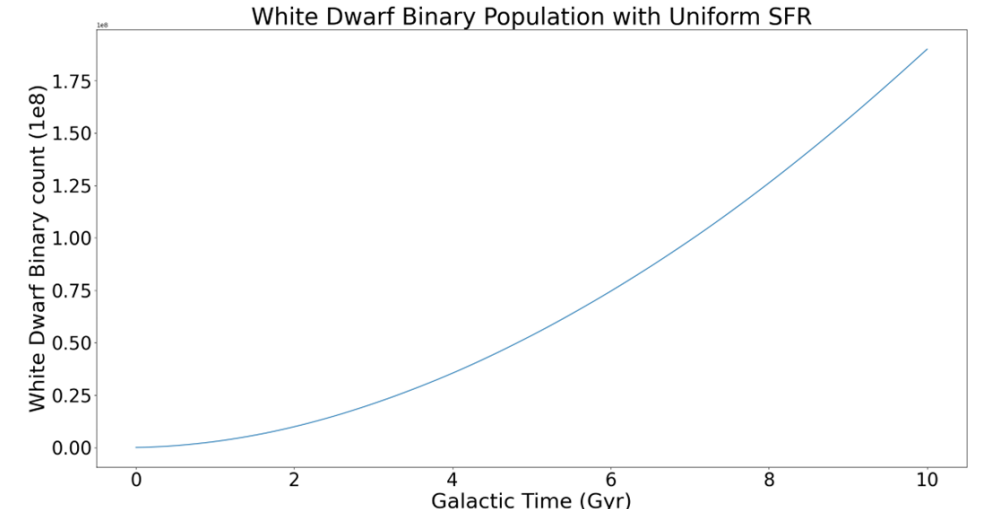
CE Prescription : Lambda Nanjing