



# The Beginnings and Ends of Double White Dwarfs

Contribution ID: 26

Type: **not specified**

## Double white dwarf merger remnants as low frequency gravitational wave sources

*Friday, 5 July 2019 12:10 (20 minutes)*

We propose a new category of low frequency gravitational wave sources related to mergers of double white dwarfs. A remnant just after a merger is a rapidly and differentially rotating objects, which may develop non-axisymmetric instability of hydrodynamical origin. If the remnant is susceptible to the so-called 'low T/W' instability,  $m=2$  (bar) or  $m=1$  (spiral) density pattern may develop (here  $m$  is the azimuthal quantum number of perturbation) and the mass quadrupole may oscillate with a typical frequency of  $O[0.1-1]$  Hz. We discuss the detectability of newly-born remnants by the planned spaceborne gravitational wave observatories targeting intermediate frequency range such as DECIGO, Big Bang Observer, and TianQin.

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**Session Classification:** Mergers