

## Binary population models of GW progenitors

*vendredi 11 octobre 2019 14:30 (20 minutes)*

The LIGO/Virgo detections of gravitational waves from merging massive black holes suggest progenitor stars of low metallicity. In this talk I will provide constraints on the formation of the stellar progenitors based on advanced models of galaxy formation and evolution combined with binary population synthesis models. First I will combine estimates of galaxy properties (star-forming gas metallicity, star formation rate and merger rate) across cosmic time to predict the low redshift BBH merger rate as a function of present day host galaxy mass, formation redshift of the progenitor system and different progenitor metallicities. I will show that the signal is dominated by binaries formed at the peak of star formation in massive galaxies with and binaries formed recently in dwarf galaxies. Then, I will present what very high resolution hydrodynamic simulations of different galaxy types can learn us about their black hole populations.

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**Classification de Session:** Groupe de travail: Populations des sources