



Contribution ID: 25

Type: **Invited**

Formation and evolution of merging black-hole binaries

Friday, 2 March 2018 16:40 (30 minutes)

The first confirmation of the existence of merging stellar-mass black holes (BHs) came on September 14 2015, when the LIGO interferometers observed the gravitational-wave signal from the merger of two BHs with mass larger than 25 Msun (GW150914). Since then, four additional BH mergers were observed, and two of them have BHs with mass larger than 30 Msun. From the theoretical point of view, the models that predict the formation and evolution of binary BHs are still uncertain. In this talk, I will present the BH mass spectrum obtained from up-to-date population-synthesis simulations and I will also discuss the effect of stellar dynamics on the evolution of binary BHs.

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Session Classification: Impact of Gravitational-Wave Surveys and Multi-messenger Observations on Astrophysics, Cosmology and Other Branches of Fundamental Physics