Contribution ID: **95** Type: **Oral contribution**

Probing the early Universe with black hole binaries

Thursday 12 September 2019 16:10 (30 minutes)

Binary stellar systems are unique astrophysical laboratories for the study of black holes (BHs). Accretion of matter from a binary companion gives rise to X-ray emission, bringing them to the X-ray binary phase and making them visible on Gpc scales, while the recent gravitational wave observations enabled us to witness the last few seconds of the lives of coalescing binary BHs. X-ray binaries and coalescing binary BHs have a lot of common threads. In fact, some types of high-mass X-ray binaries are considered as the potential immediate progenitors of gravitational-wave sources. In this talk, I will review the potential formation channels of BH binaries, focusing on the effect that metallicity has on their properties. I will discuss the constraints that current and upcoming X-ray and gravitational-wave observations can put on the properties of BH binaries in the early Universe. Finally, I will comment on the potential role that population-III stars may have in shaping these BH binary populations.

Author: FRAGOS, Tassos

Presenter: FRAGOS, Tassos

Session Classification: FUTURE PERSPECTIVES, CHEMICAL EVOLUTION, LARGE SURVEYS