IWARA2020 Video Conference - 9th International Workshop on Astronomy and Relativistic Astrophysics

Contribution ID: 60

Type: Talk

## Black holes at cosmic dawn

Monday 7 September 2020 08:00 (1 hour)

Theoretical models and observations suggest that primordial stellar Black Holes (Pop III-BHs) were prolifically formed in HMXBs, which are powerful jet-sources of synchrotron radiation called Microquasars (MQs). Possible signatures of large populations of BH-HMXB-MQs at cosmic dawn are: a synchrotron cosmic radio background (CRB) observed with ARCADE 2, and the unpredicted large excess amplitude of HI absorption at z=17 reported by EDGES, believed to be boosted by the CRB of ARCADE 2. Pop III BH-HMXB-MQs precede supernovae, neutron stars and dust. BH-HMXB-MQs promptly inject hard X-rays and relativistic jets into the IGM, which overtake the HII regions ionized by progenitor Pop III stars, heating and partially ionizing the IGM over larger distance scales. BH-HMXBs are channels for the formation of BBHs. The large masses of GW-BBHs relative to X-ray-BHs, and the high rates of BBH-mergers, are consistent with a high formation rate of BH-HMXBs and BBHs at cosmic dawn.

Author: MIRABEL, I. F. (IAFE-UBA-Argentina)
Presenter: MIRABEL, I. F. (IAFE-UBA-Argentina)
Session Classification: COSMOLOGY, DE, DM, COMPACT STARS, GRAVITY, BHs, GWs