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Type: **Plenary talk**

Magnetized Supermassive Stars and Hypermassive Black Holes

Thursday, 11 July 2024 18:00 (30 minutes)

Using general relativity, we study the equilibrium and stability of stars with quasi-spherical symmetry involving random transverse magnetic fields (RTMF) within an extremely wide mass range including magnetized supermassive stars of millions or ten millions of solar masses. Among others, such magnetized massive stars in proper mass ranges would most likely be the progenitors of black holes within the forbidden mass zone as reported by several LIGO/Virgo observations due to the suppression of electron-positron pair instabilities and would also be the progenitors of magnetars by empirical reasoning. Separately, we present the study on self-similar dynamic formation of hypermassive black holes (HMBHs – 10 to 1000 billion solar masses or even higher) and supermassive black holes (SMBHs – millions to billions of solar masses) within giant mass reservoirs in the Universe including the early universe. Pertinent observations and analyses are discussed.

Presenter: Prof. LOU, Yu-Qing

Session Classification: The largest energy BDHs and their electrodynamical inner engine