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Search and characterization of massive black hole binary candidates

Wednesday, 4 October 2023 11:00 (30 minutes)

Massive black hole (MBH) binaries are among the loudest expected sources of low frequency gravitational waves. The rate of MBH coalescences is still very uncertain, and EM observations of close MBH binaries have the potential to strongly reduce the current uncertainties. I will discuss the physical consequences of the presence of a binary on the surrounding gas, deriving the observational features associated with massive black hole binaries proposed in literature. I will then report on the results of MBH binary searches in large observational datasets. It must be stressed that the proposed observational features are not unique to binary systems. I will therefore discuss follow up strategies to test the binary scenario. Single massive black hole binary candidates that made it to the news will be discussed in detail, including the results of unpublished observational tests. The talk will end with the discussion of the limitations of current searches and with an overlook to complementary searches that next generation EM surveys will allow for.

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