## W21a Regulation of gas accretion by cocoon from stellar-mass BHs in AGN disks

Hiromichi Tagawa (Tohoku), Shigeo Kimura (Tohoku), Zoltan Haiman (Columbia), Imre Bartos (Florida), Rosalba Perna (Flatiron)

The astrophysical origin of gravitational-wave (GW) events is one of the most timely problems in the wake of the LIGO/Virgo discoveries. One promising pathway for compact object mergers are evolution in AGN disks. However, in this environments, compact objects may rapidly grow to intermediate or supermassive black holes (BHs) unless accretion is suppressed by some feedback processes. Here, we propose that a cocoon emerged around a jet emitted from an accreting stellar-mass BH (sBH) due to the Blandford-Znajek effect can significantly regulate accretion onto a sBH. Such cocoon can eject outer regions of a circum-BH disk (CBD) and gas within about the scale height of an AGN disk. Since the depletion timescale of the bound CBD is usually much shorter than the resupply timescale of gas to a sBH, the averaged accretion rate onto the sBH can be reduced by orders of magnitude depending on parameters. We discuss the evolution of sBHs and observational signatures expected in this regulation process.