
Magnetic reconnection as origin of Sagittarius A* flares

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Abstract

For the past two decades, flares (i.e., outbursts of radiation) have been observed from the center of the Milky Way, where a massive compact object of 4.3 million solar masses resides at only 8.3 kpc. This makes this object, called Sagittarius A* (Sgr A*), the closest supermassive black hole candidate to Earth and a unique laboratory for relativistic astrophysics. Recent observations have shown that the source of these outbursts is close to the event horizon and has an orbital motion around the black hole. Many scenarios are envisaged to explain this phenomenon without reaching a consensus. Among these scenarios, magnetic reconnection is one of the most promising, supported by many GRMHD and PIC studies. During this presentation, I will introduce a realistic semi-analytical model of magnetic reconnection based on kinetic simulations. I will examine the diversity of observables associated with these models and discuss them in light of the recent VLTI/GRAVITY observations of Sgr A* flares.

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