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Modelling the flares of Sagittarius A* observed by GRAVITY

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For the past two decades, flares (i.e. outbursts of radiation) have been observed from the centre of the Milky Way where a massive compact object of 4.2 millions solar masses resides at only 8.3 kpc. This makes this object called Sgr A* the closest supermassive black hole candidate to Earth and an 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 present two models of flares: a general analytical "hot spot" model taking into account the quiescent state of Sgr A *and a more realistic magnetic reconnection model based on kinetic simulations. I will examine the diversity of observables associated to these models and discuss them in the light of the recent VLTI/GRAVITY observations of Sgr A* flares.*

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