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Flares and ejections from black hole accretion flows

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Flares and ejections are often observed from black holes. One typical example is Sgr A*, the supermassive black hole in our Galactic center. In this talk, I will first review our observational results and theoretical understanding of the flares in Sgr A*. Special attention will be paid to introduction of high-resolution VLT-GRAVITY results. Then I will focus on the interpretation of these results by our 'coronal-mass-ejection' model, which invokes the formation of magnetic flux ropes and their subsequent ejection due to magnetic reconnection. I will introduce the basic physical picture, our 3D GRMHD simulations of accretion flow, the radiative transfer calculations of flares, and our explanations to the GRAVITY results, including light curves, trajectory and the super-Keplerian motion of the hot spots observed by GRAVITY.

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