## Gamma-ray emission from the Galactic center and implications of its past activities

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Radiatively inefficient accretion flows (RIAFs) in low-luminosity active galactic nuclei (LLAGNs) have been suggested as cosmic-ray and neutrino sources, which may largely contribute to the observed diffuse neutrino intensity. We show that this scenario naturally predicts hadronic multi-TeV gamma-ray excesses around galactic centers. The protons accelerated in the RIAF in Sagittarius A(*Sgr A*) escape and interact with dense molecular gas surrounding Sgr A, which is known as the Central Molecular Zone (CMZ), and produce gamma rays as well as neutrinos. Based on a theoretical model that is compatible with the IceCube data, we calculate gamma-ray spectra of the CMZ and find that the gamma rays with ~ 1TeV may have already been detected with the High Energy Stereoscopic System (HESS), if Sgr A was more active in the past than it is today as indicated by various observations. Our model predicts that neutrinos should come from the CMZ with a spectrum similar to the gamma-ray spectrum. We also show that such a gamma-ray excess is expected for some nearby galaxies hosting LLAGNs.

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