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# Morphology of the Galactic Center Gamma-Ray Excess

*Sunday, 19 April 2026 15:20 (25 minutes)*

The Galactic Center Gamma-Ray Excess (GCE) remains one of the most intriguing puzzles in astrophysics, with leading interpretations including dark matter annihilation and an unresolved population of millisecond pulsars. In this talk, I present two complementary studies on the GCE morphology. First, I show that the GCE morphology is robust against variations in point source and galactic disk masking, consistently favoring either a nearly spherical profile or a peanut-shaped profile, depends on the background diffuse emission models. Second, motivated by recent Galactic surveys including Gaia, I extend the analysis to generic triaxial and tilted dark matter halos, finding that while the GCE spectrum and inner cuspiness are robust against halo triaxiality and tilt, its morphology can discriminate between different triaxial halo configurations and is more compatible with a dark matter origin than a stellar one.

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