

High-energy neutrino and gamma-ray emission from the AGN-driven wind in NGC 1068

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Various observations are revealing the widespread occurrence of fast and powerful winds in active galactic nuclei (AGN) that are distinct from relativistic jets, likely launched from accretion disks. Such winds can harbor collisionless shocks at different locations that may induce acceleration of protons and electrons and consequent nonthermal emission. We focus on the innermost regions of the winds, where photohadronic interactions between accelerated protons and the nuclear radiation field can cause emission of high-energy neutrinos and gamma-rays. In particular, we address the case of NGC 1068, a nearby Seyfert galaxy bearing a powerful wind, which is a known source of GeV gamma rays as well as a tentative source of sub-PeV neutrinos. Tests and further implications of this scenario are discussed.

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