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Multi-messenger signals from Seyfert galaxies

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Active galactic nuclei (AGN) can launch and sustain powerful wide-angle winds which can unbind the gas from the host galaxies, offering a plausible physical origin for the black hole-galaxy co-evolution.

Propagating through the galaxy, AGN-driven winds can interact with the interstellar medium creating strong shocks which are able to accelerate charged particles to high energies. Accelerated particles can interact with ambient matter and radiation fields producing gamma-rays and neutrinos.

I will present the multi-messenger potential of AGN-driven winds in terms of escaping cosmic rays, high-energy gamma rays, and neutrinos. The general predictions are then specialized to the case of the composite starburst/Seyfert galaxy NGC 1068. NGC 1068 is the brightest of the starburst galaxies detected in the gamma-ray band, and it is reported as a point-like neutrino source by the IceCube collaboration.

I will compare the gamma-ray and neutrino fluxes expected in the AGN wind model and those corresponding to other models, such as starburst and AGN corona models, with available observations in order to derive constraints on gamma-ray and neutrino production sites.

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