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Acceleration and Collimation Zone (ACZ) of the NGC 4261 Jet: A Scaled-down Counterpart to M 87?

In this report, we present our recent study of the acceleration and collimation of the two-sided jets in the nearby low-luminosity AGN NGC 4261. We robustly identify a parabolic-to-conical structural transition in both the jet and counterjet, with the transition occurring on (sub)parsec scales. Based on the jet-to-counterjet brightness, we derive the jet velocity field at distances of ~ (10^3 -10^4) Rs. Although local kinematic variations are present, the jet shows an overall acceleration to relativistic speeds within the parabolic jet region. These results support the existence of a (sub)parsec-scale (⊠ 1.5 pc) ACZ in NGC 4261. A brief comparison with M 87 suggests that the ACZ in NGC 4261 may represent a scaled-down analogue of that in M 87. We prospect that future (sub)mm-VLBI observations with multi-band receivers will be crucial to explore jet launching regions and their connection to ACZs.

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