A07b 宇宙ジェットモデルの世紀末：円盤コロナによる収束

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輻射圧で駆動する宇宙ジェットの加速と収束について検討した結果を報告する。まず、本講演では、円盤コロナによる収束機構について議論したい。

We examine steady relativistic jets, emanating from an inner accretion disk, driven by disk radiation fields, and confined by an isothermal corona. In order to describe the radiation fields produced by the standard accretion disk, we derive bridging formulae which approximately represent the components of the radiation fields from a near-disk regime to a distant regime. We use a streamline approach, where the dynamical equations are expressed by the streamline coordinates, and a cold approximation, where the pressure-gradient force is ignored. When the effect of a corona is ignored, the jet streamlines widen due to the centrifugal force. When the corona is considered, on the other hand, the jet flow is remarkably collimated by the corona gas. As a result, radiative winds from an inner disk forms hollow cylindrical jets. The present radiative jets have a terminal speed, where the radiation force is balanced with the gravitational and the radiation drag forces. The terminal speed v_∞ is not sensitive to the corona properties, but depends on the disk luminosity. The terminal speed v_∞ is approximately expressed as $v_\infty/c \sim (0.5/\Gamma_{\rm d})^{0.9}(\Gamma_{\rm d} - 0.5)$, where $\Gamma_{\rm d} = L_{\rm d}/L_{\rm E}$. For the Eddington luminosity ($\Gamma_{\rm d} = 1$), the terminal speed is about $0.27c$, which is very close to the speed of SS 433 jets.

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