
Inclined gas accretion onto early-type disk galaxies: incidence and evolution impact.

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Abstract

Inner polar gaseous disks are rather frequent in early-type disk galaxies: e.g. in the volume-complete ETG sample of ATLAS-3D survey, 10 percent of all S0s have inner polar gaseous disks which spins are nearly orthogonal to the spins of their stellar disks. We treat this phenomenon as a result of outer cold gas accretion from an arbitrary direction. The polar orbits are rather stable, so gas coming from an inclined direction would approach either the galactic plane or the polar plane. In the former case we observe star formation in the accreted gas: typically counterrotating gaseous disks form new stars. In the latter case, according to our small statistics, the gas coming from a strongly inclined direction into a galactic disk does not usually ignite star formation.

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