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Optical and infrared radiation pressure on dust and gas around AGN as drivers of dusty winds

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Parsec-scale polar emission signatures seen in the infrared continuum of many nearby AGN suggest the presence of dust in a region generally associated with outflowing gas. This makes clear that the idea of a circumnuclear obscurer referred as torus needs to be revised in favour of a more complex obscuring structure, yielding a polar component. We present a semi analytical model to test the hypothesis of radiatively accelerated dusty winds launched by the AGN and the heated dust itself. The main components of the model under consideration are an AGN and an infrared radiating dusty disk, the latter being the primary mass reservoir for the outflow. We derive the full components of the force field experienced by dusty clouds in this environment, accounting for both gravity and the AGN radiation as well as the re-radiation by the hot dusty gas clouds themselves. We see that dusty outflows naturally emerge, whose strength and directions will depend on the Eddington ratio and the column density of the intervening material.

Consider for a poster?

Yes

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Session Classification: Dust in AGN

Track Classification: Dust as a tool