MAPPING THE GALACTIC CENTER

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Gas and dust in the inner region of the Galaxy are distributed in a flat, disk-like structure. We model the dynamics of this material in the framework of an accretion disk approach, and thus determine the efficiency of the radial transport of mass and angular momentum in the inner $\sim 200\,\mathrm{pc}$ of the Galactic Plane. Moreover, this allows us to establish the location (coordinates: galactic longitude l and depth normal to the celestial sphere) of molecular clouds from the observed positions (l) and radial velocities (currently, we neglect details of the vertical structure). Ultimately this will yield a map of the distribution of molecular clouds about Sgr A*.

In contrast to standard accretion disk models, we do not prescribe the viscosity by an α formulation but rather allow for additional external mechanisms (magnetic fields, supernova driven turbulence etc.) that may even dominate the transport of angular momentum. It turns out that the resulting viscosity is by about two orders of magnitude larger than what one would expect from an α accretion disk model.

We find that currently at radii of $\sim 100\,\mathrm{pc}$ from the Galactic Center $\sim 10^{-2}\,\mathrm{M}_\odot/\mathrm{yr}$ are flowing towards Sgr A* and that highly non-axisymmetric processes, like bars, are *not* required to explain the transport of angular momentum and mass in the inner $\sim 200\,\mathrm{pc}$ of the Galaxy.

https://doi.org/10.1017/S0074180900232889 Published online by Cambridge University Press