BLACK HOLES IN DENSE STAR CLUSTERS
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TITLE: An Inclination Instability in a Disk of Stars around a Massive Black Hole

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Less than ten million years ago, the Galactic center experienced a burst of star formation resulting in a clockwise-rotating disk of stars. The most luminous tracers of this disk are massive O and Wolf-Rayet stars. Less than half of these stars today remain in a thin disk with moderate eccentricities (e∼0.3). This is surprising due to the long relaxation times at the radii of the disk. In this talk I will describe a new gravitational dynamical mechanism which exists in disks of stars with eccentric orbits. Self-gravity between the orbits cause angle of pericenter alignment and rapid growth of orbital inclination. I will apply this mechanism to the young clockwise disk in the Galactic center, and discuss how we can use it to shed light on their orbital distribution at formation.