

Talk at Splinter Meeting

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2D MULTI-SCALE SIMULATIONS OF BLACK-HOLE FEEDING IN BARRED
GALAXIES

M. Jung¹, T. Illenseer¹, W. Duschl¹

¹*ITAP, CAU Kiel*

We use 2D multi-scale simulations on a logarithmically scaled polar grid to study the effects of a barred galaxy on the feeding of a center black hole. The simulation domain spans from 16 kpc down to 2 pc including the inner black hole accretion disk. The non-axisymmetric potential of the bar leads to the formation of spiral arms on galactic scales. At about 1 kpc we observe a nuclear ring. On the smallest scales the accretion flow requires angular momentum redistribution, which can be driven by self-gravity and beta-viscosity. The efficiency of this process depends strongly on the presence of the non-axisymmetric bar potential. We show first results, which account for a varying amount self-gravitation.