

Evidence for Dark Matter

M51 - whirlpool galaxy



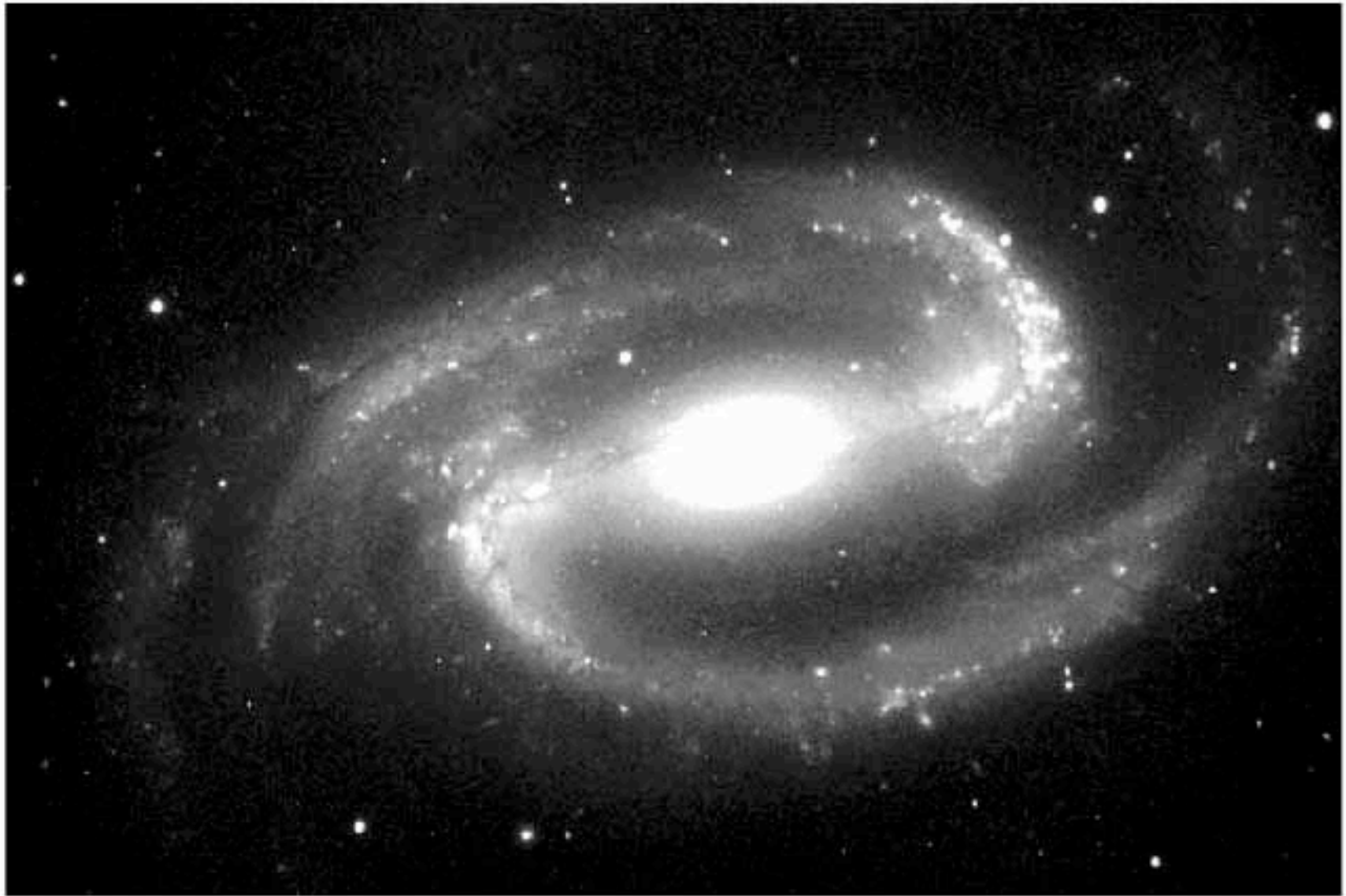


Fig 5.32 (WIYN) 'Galaxies in the Universe' Sparke/Gallagher CUP 2007

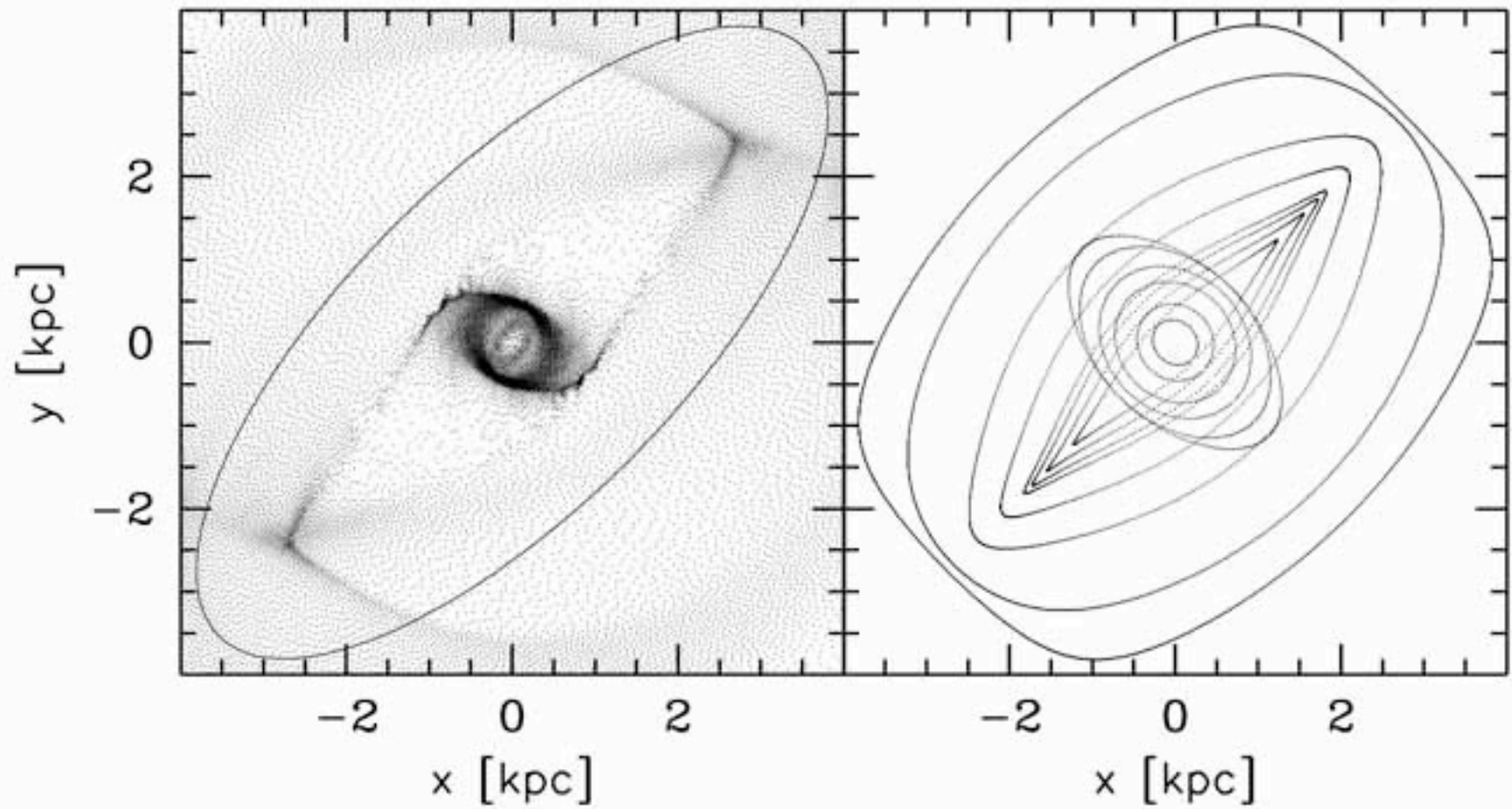


Fig 5.33 'Galaxies in the Universe' Sparke/Gallagher CUP 2007

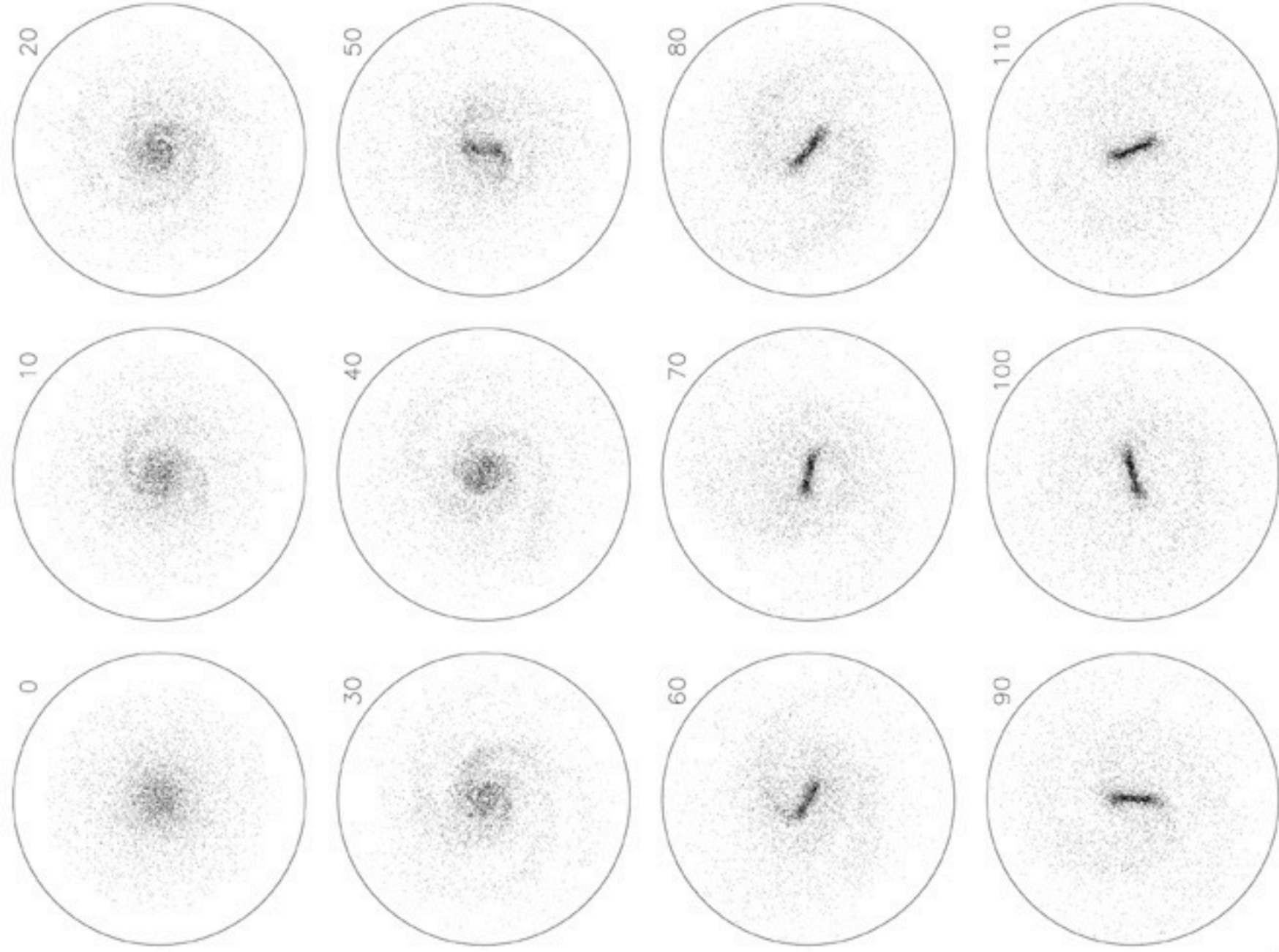
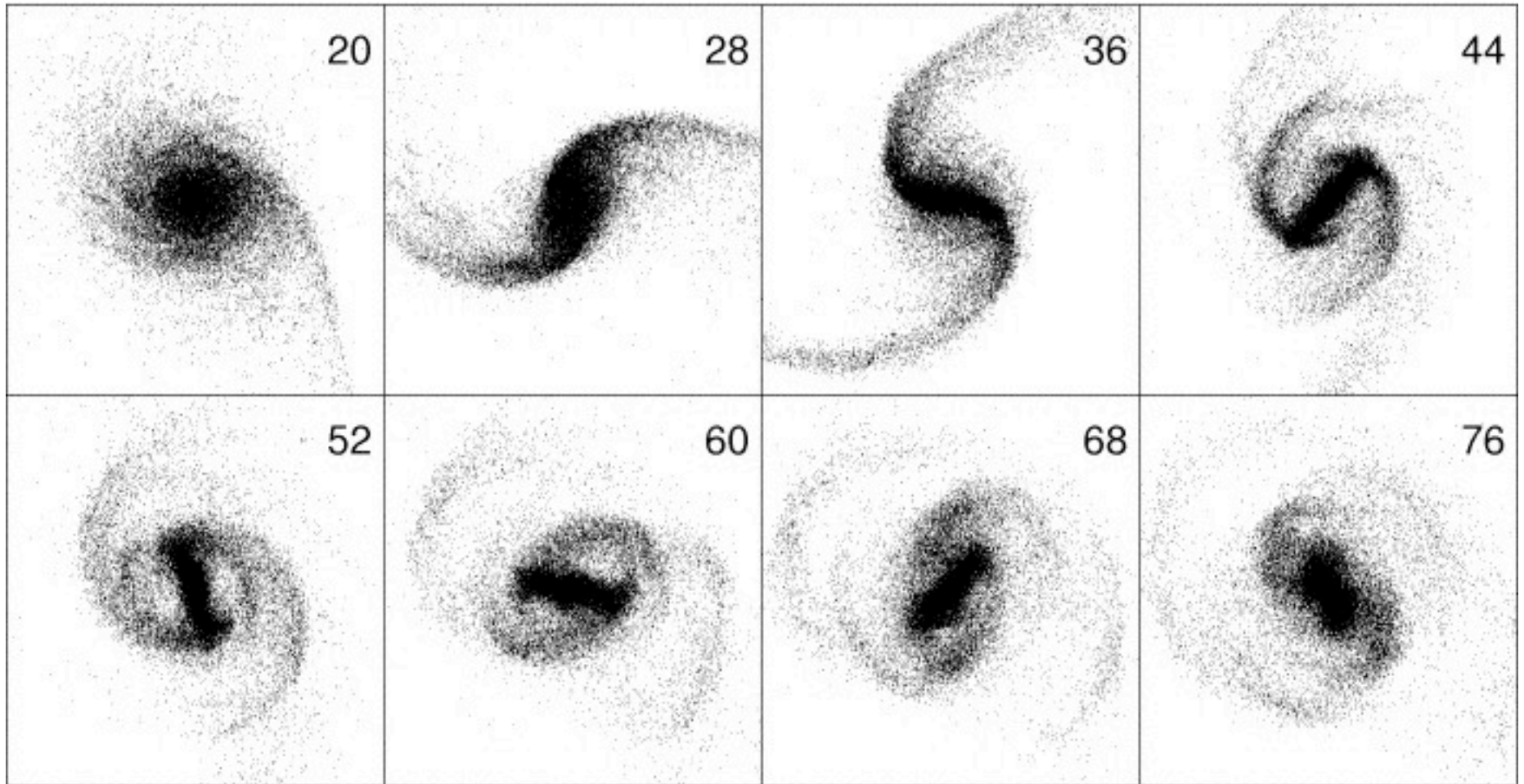
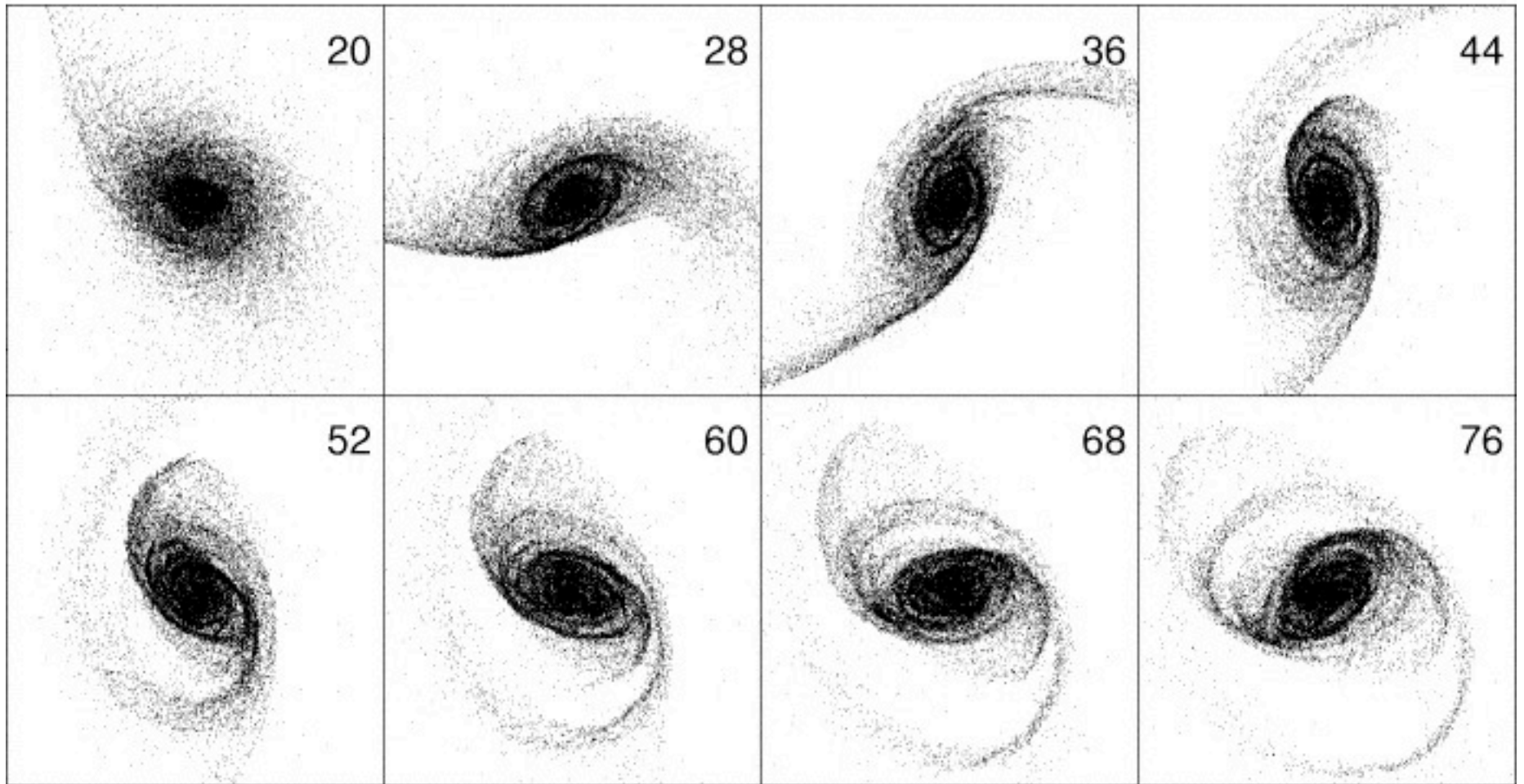


Fig 5.31 (J.Sellwood) 'Galaxies in the Universe' Sparke/Gallagher CUP 2007

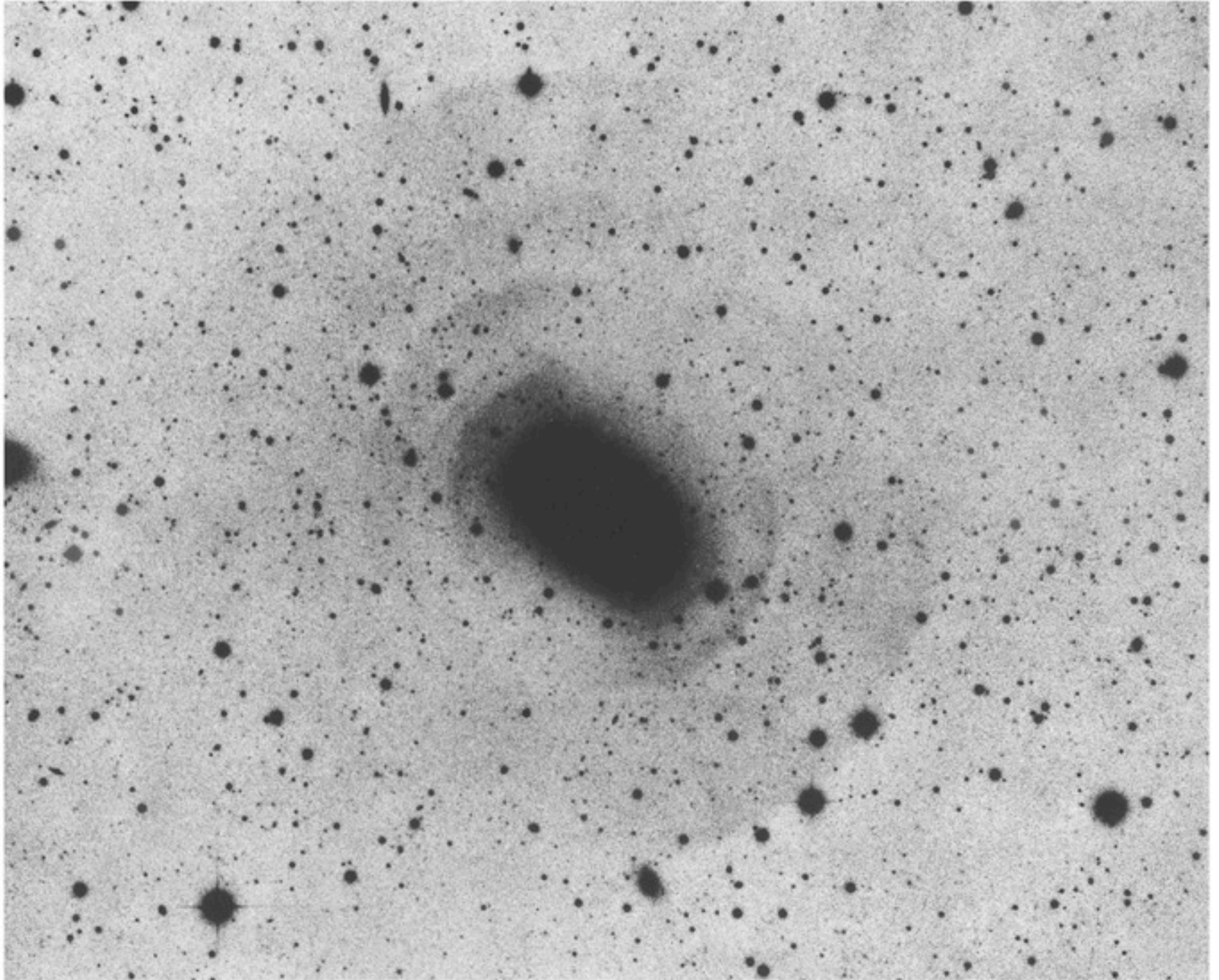
High Surface Brightness disk - lots of disk self-gravity

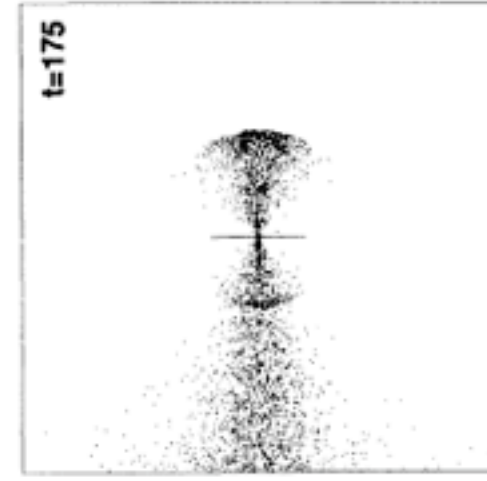
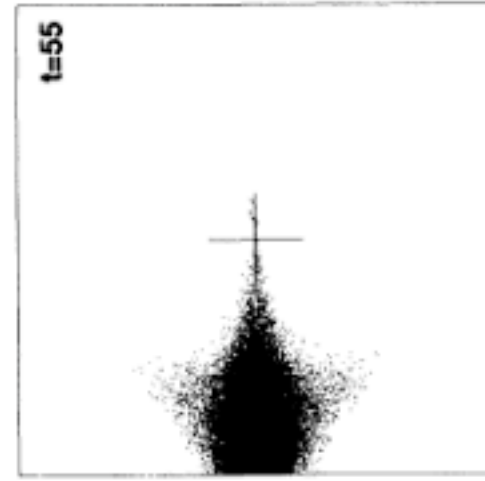
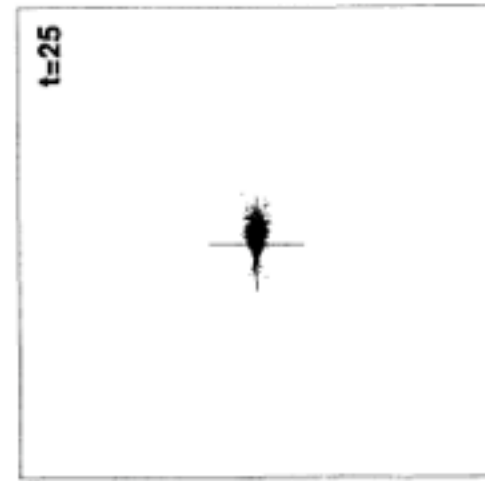
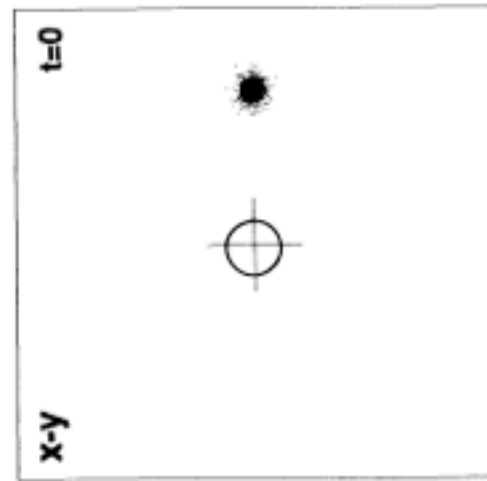
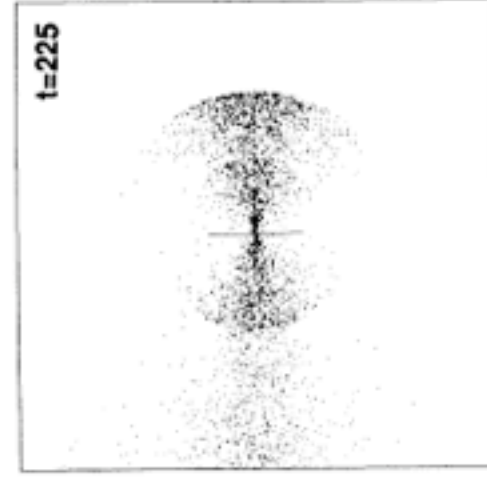
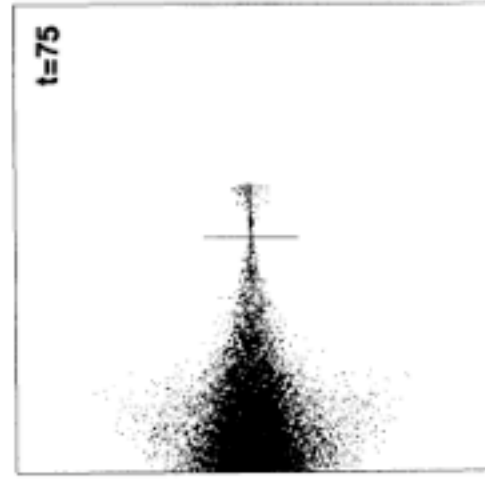
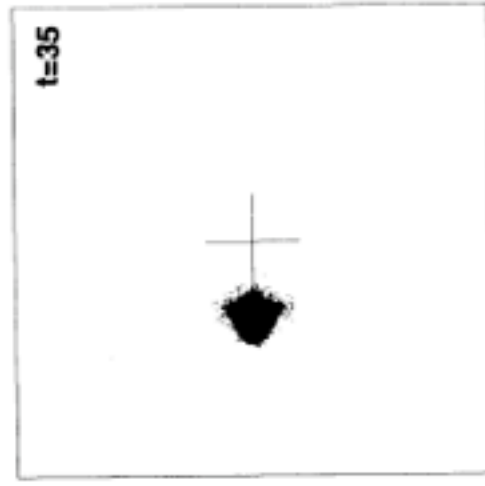
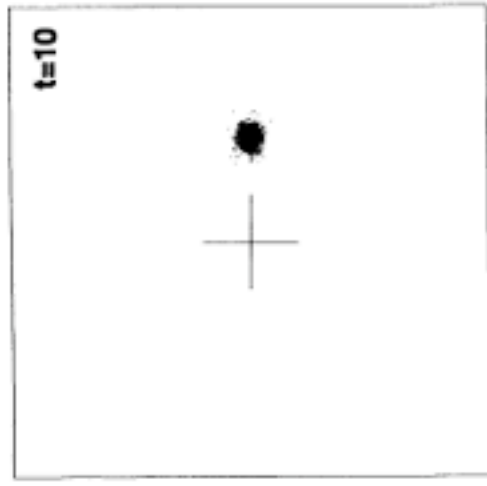
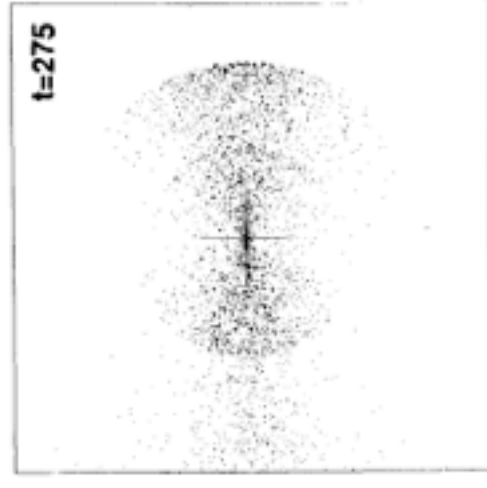
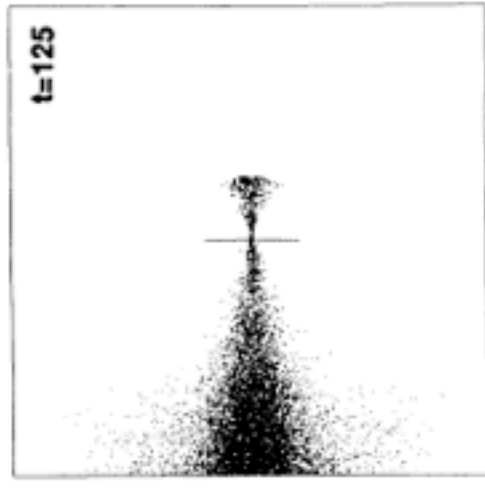
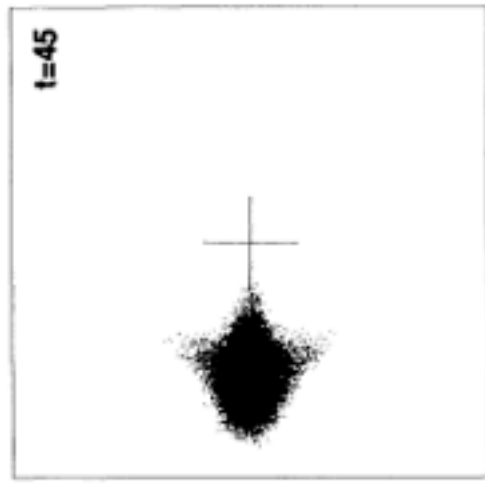


Low Surface Brightness disk - little disk self-gravity



NGC 3923 - Elliptical with Shells (minor merger)





The Mice - interacting galaxies (major merger)

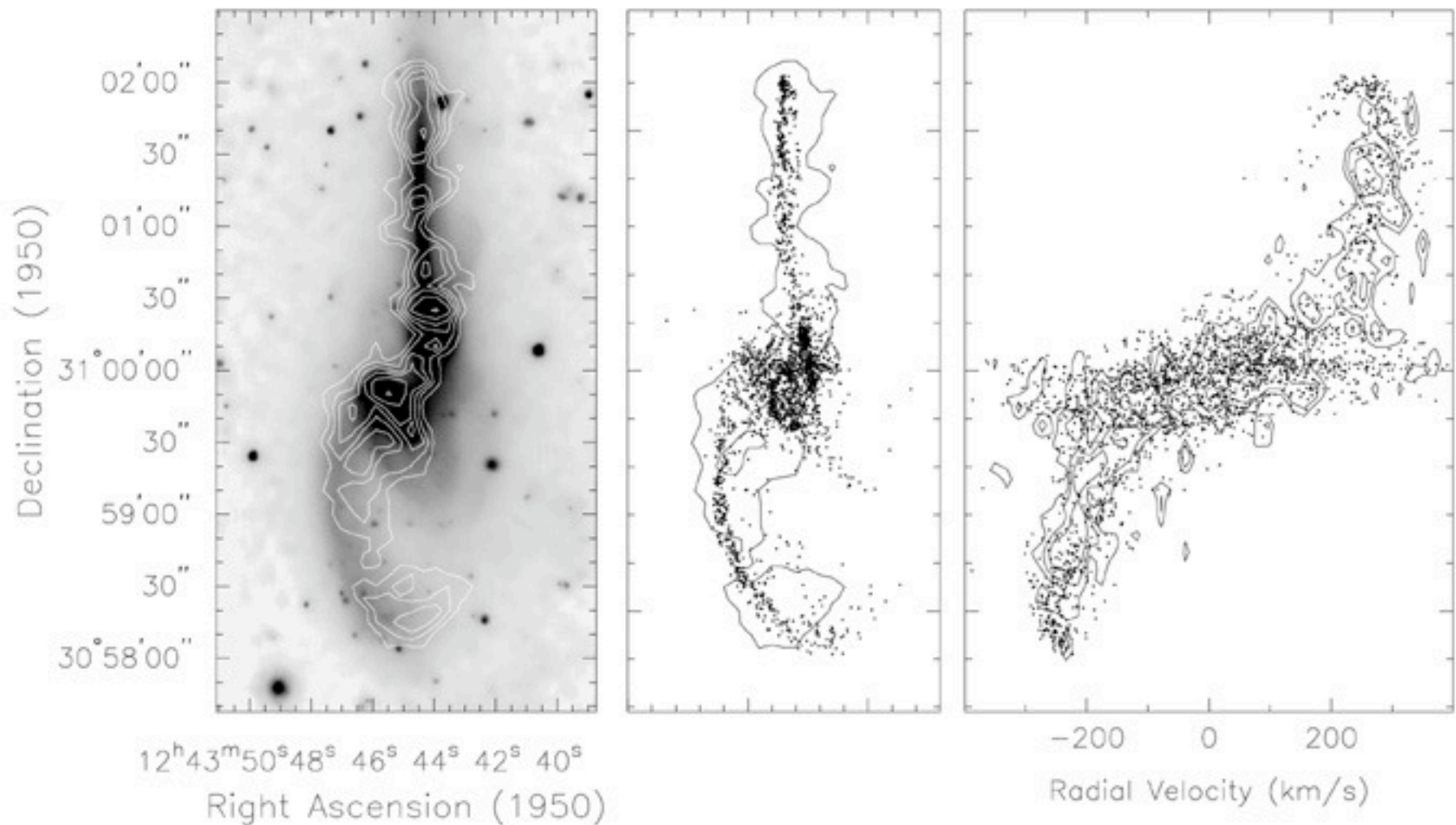


Fig 7.5 (J. Hibbard, J. Barnes) 'Galaxies in the Universe' Sparke/Gallagher CUP 2007

The Mice - model

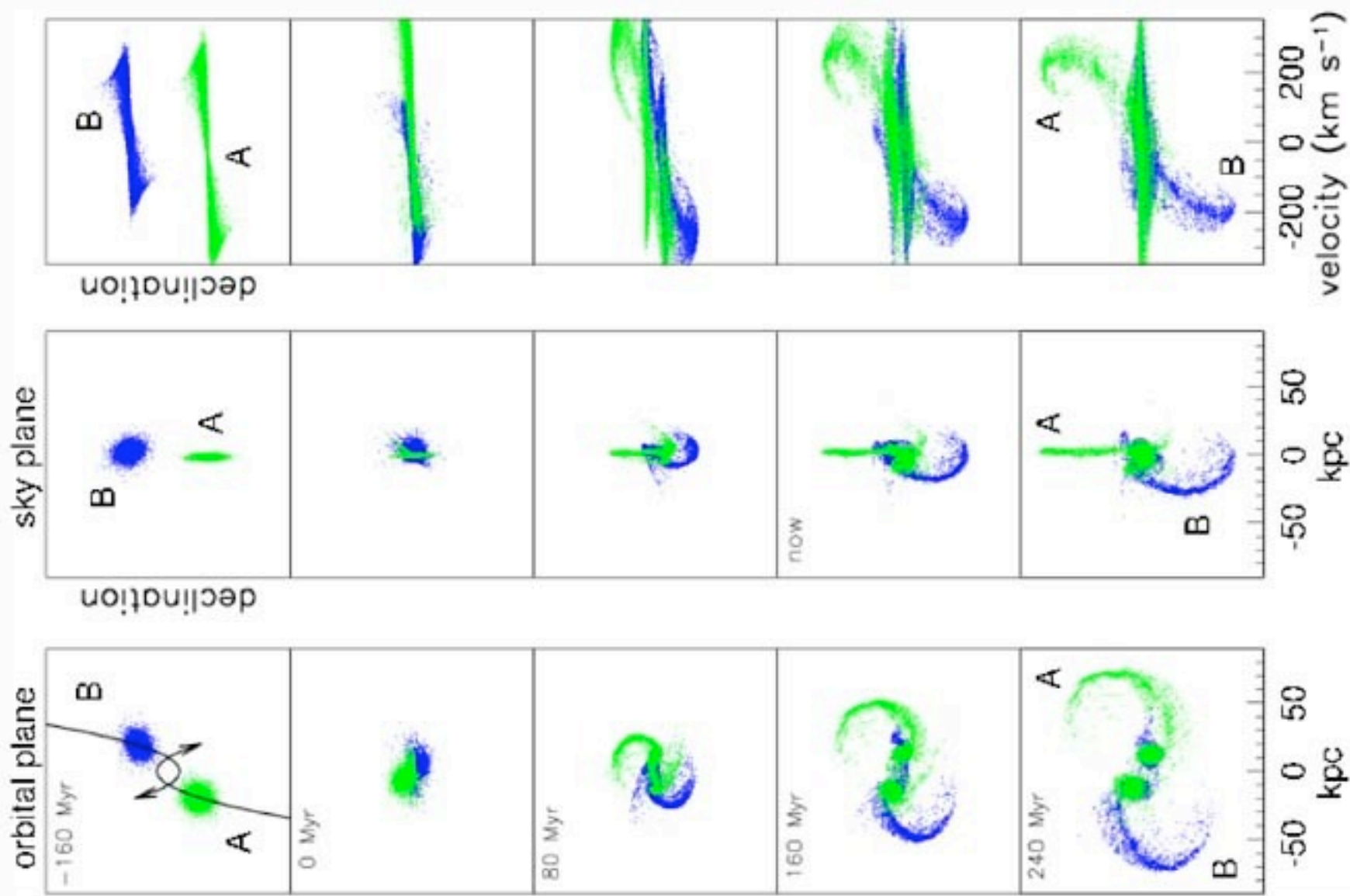


Fig 7.6 (J.Hibbard, J.Barnes) 'Galaxies in the Universe' Sparke/Gallagher CUP 2007

Gravitational Lensing

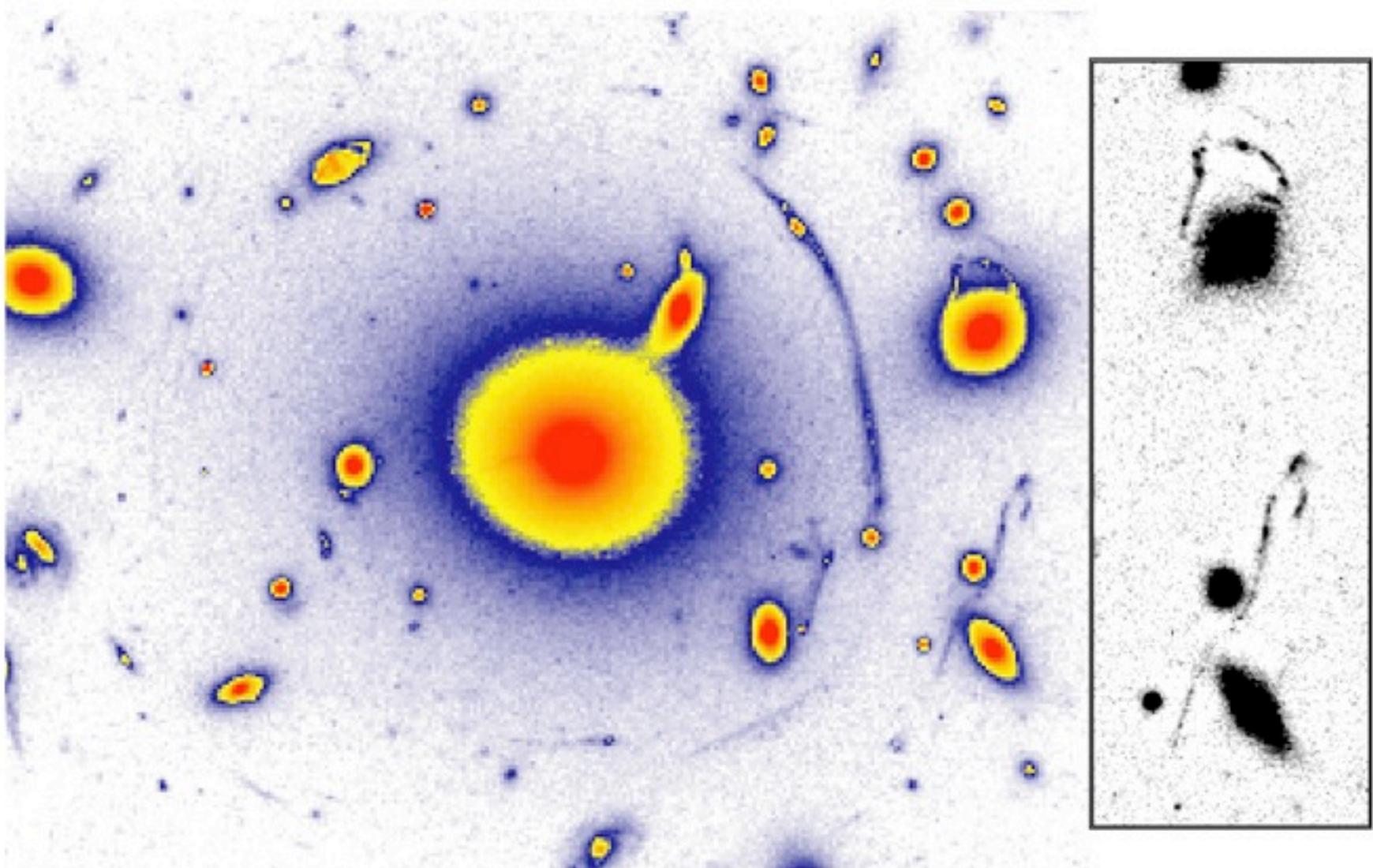
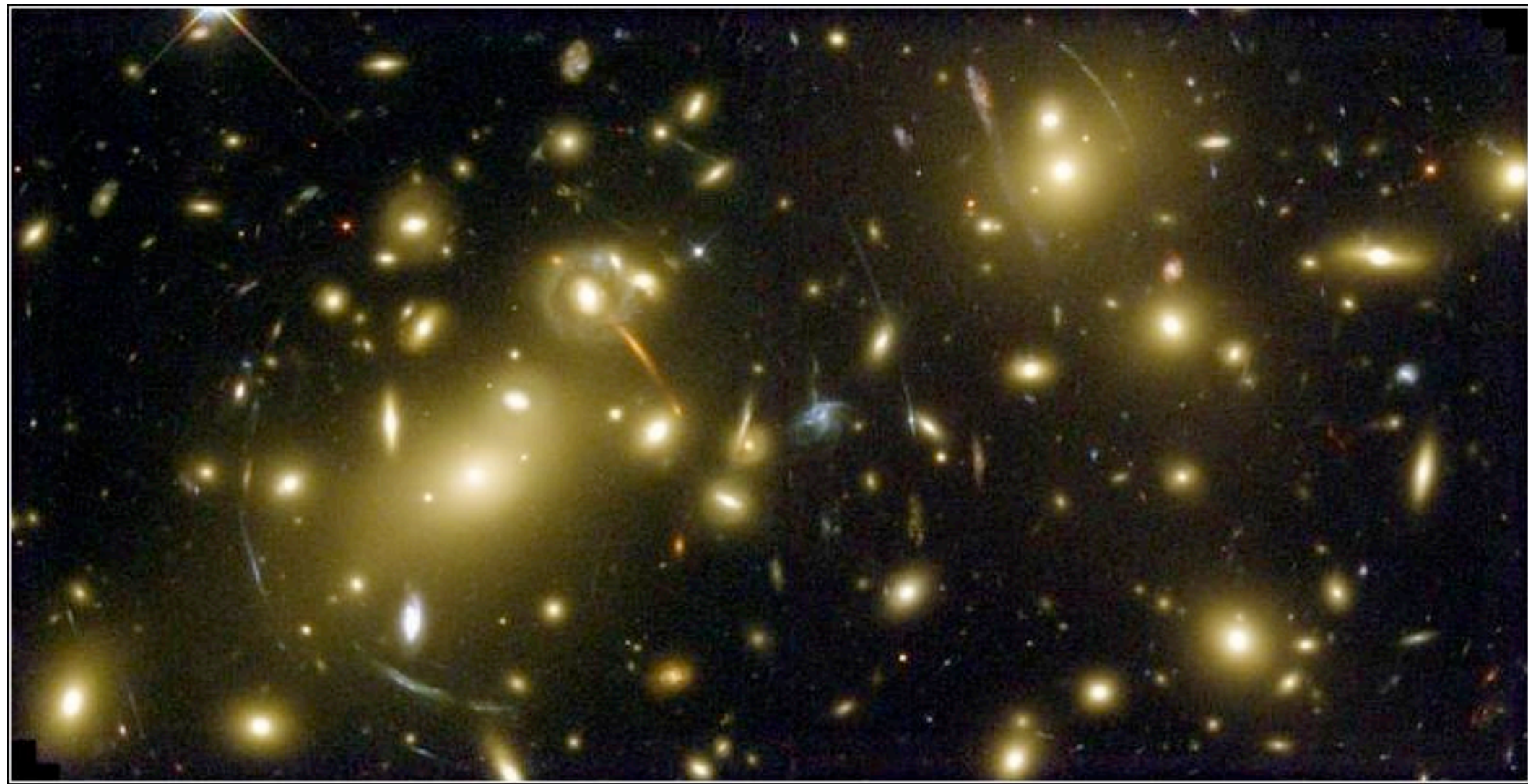


Fig 7.13 (G. Smith) 'Galaxies in the Universe' Sparke/Gallagher CUP 2007

Galaxy Cluster



1E 0657-56 - “bullet” cluster (Clowe et al. 2006)

