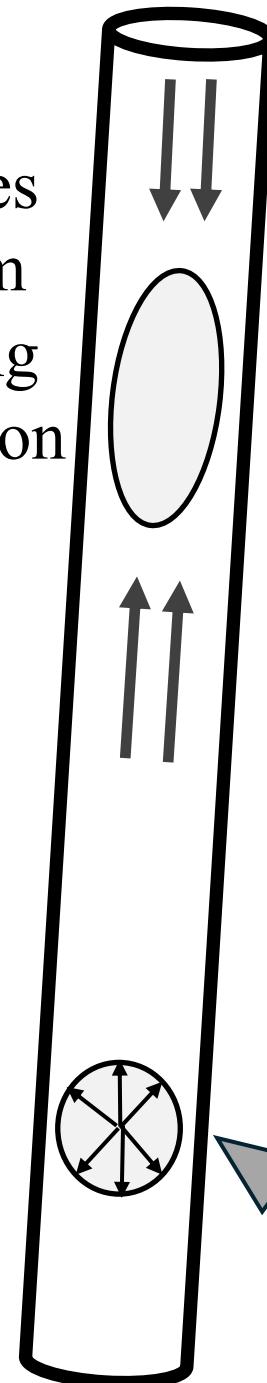


Effect of filaments at $z \gtrsim 1$

Prolate galaxies and halos form elongated along filament direction

Low-spin galaxies due to smoother accretion

More stars in velocity dispersion-supported orbits



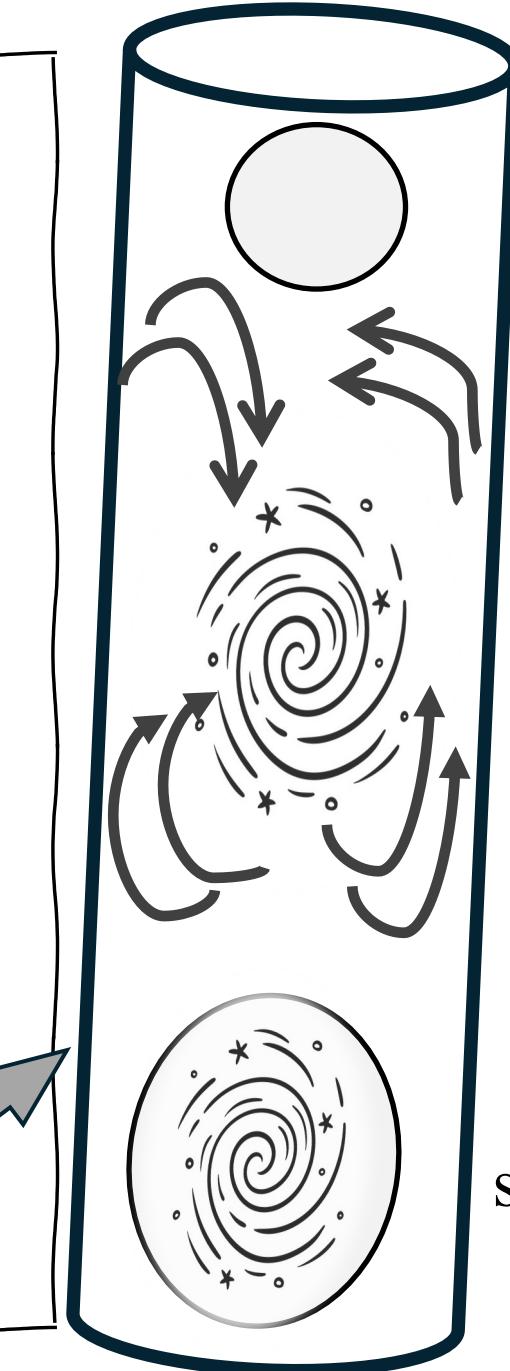
Variation at fixed mass

- Fraction of prolate stars and halos
- Fraction of spheroidal halos
- Stars in dispersion-dominated orbits
- Stars in rotation-dominated orbits
- Stellar spin

Low-density filaments

High-density filaments

Filament density



More spheroidal halos form

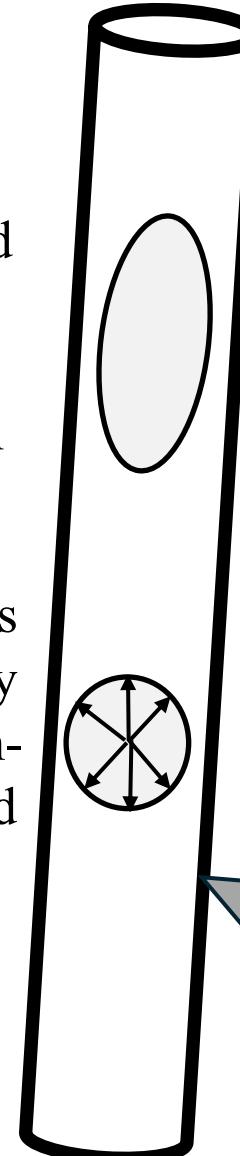
More disk galaxies due to high-vorticity accretion

More stars in rotation-supported orbits with high-spin

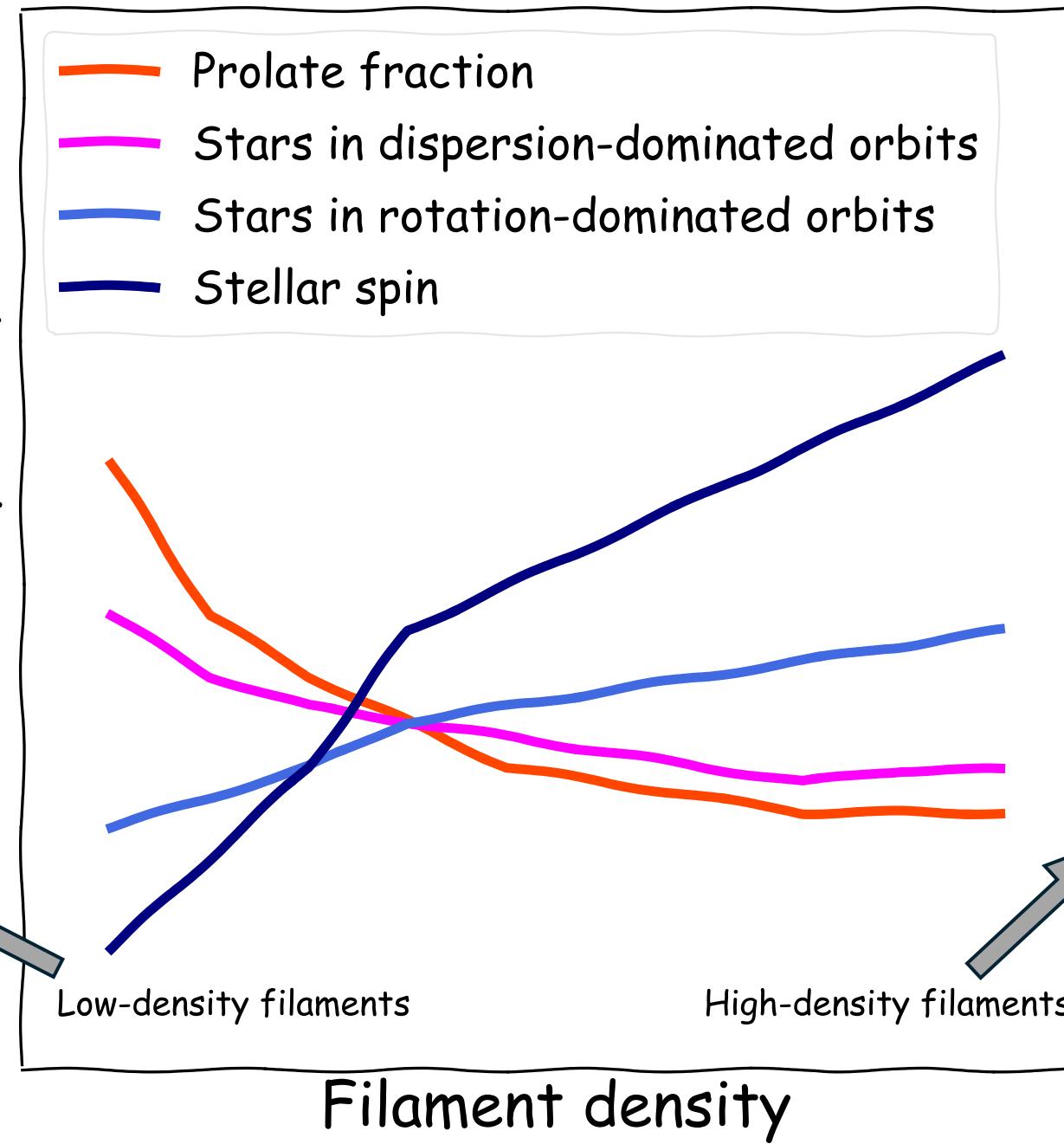
Low-density filaments:

Prolate galaxies form elongated along filament direction

More stars in velocity dispersion-dominated orbits

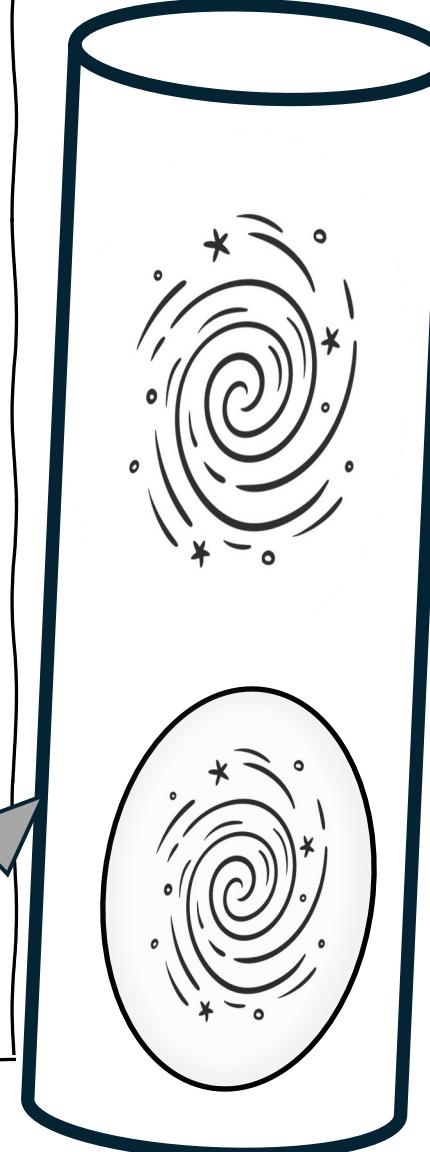


Effect of filaments at $z \sim 1 - 4$



High-density filaments:

More oblate galaxies due to high-vorticity accretion



More stars in rotation-supported orbits with high-spin