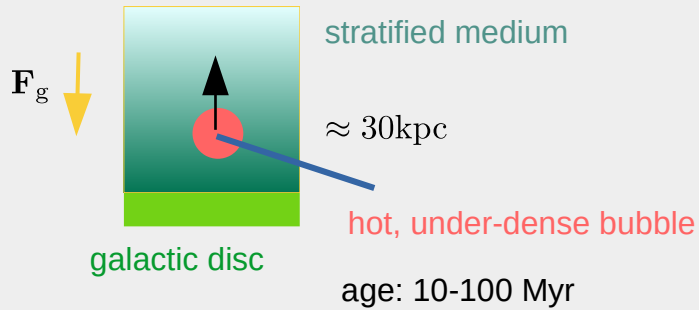


Stabilizing Effect of Magnetic Helicity on Magnetic Cavities in the Intergalactic Medium

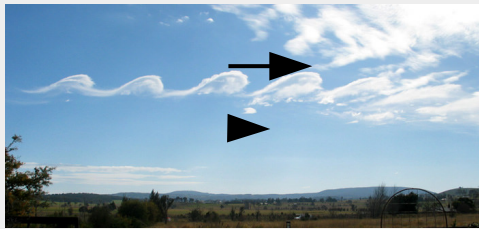
Simon Candelaresi, Fabio Del Sordo



Observation



But: Kelvin-Helmholtz should disrupt them



Can magnetic helicity stabilize intergalactic cavities?

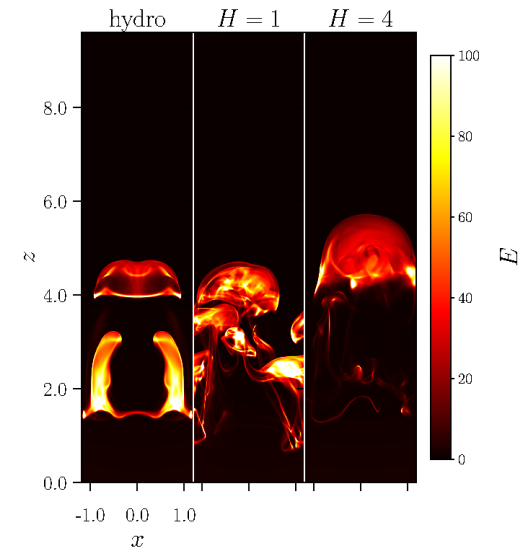
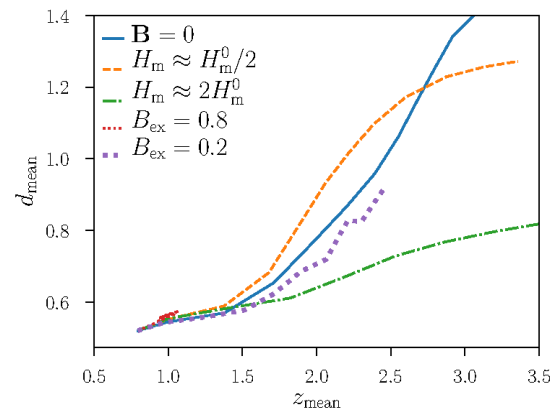
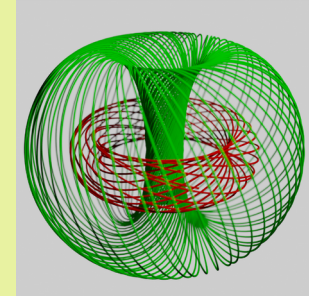
Conservation of magnetic helicity:

$$\lim_{\eta \rightarrow 0} \frac{\partial}{\partial t} \int \mathbf{A} \cdot \mathbf{B} \, dV = 0$$

Realizability condition:

$$E_m(k) \geq k |H(k)| / 2\mu_0$$

Magnetic energy is bound from below by magnetic helicity.



Magnetic helicity can stabilize intergalactic bubbles.

