A possible disruption of filamentary streams in galactic halos

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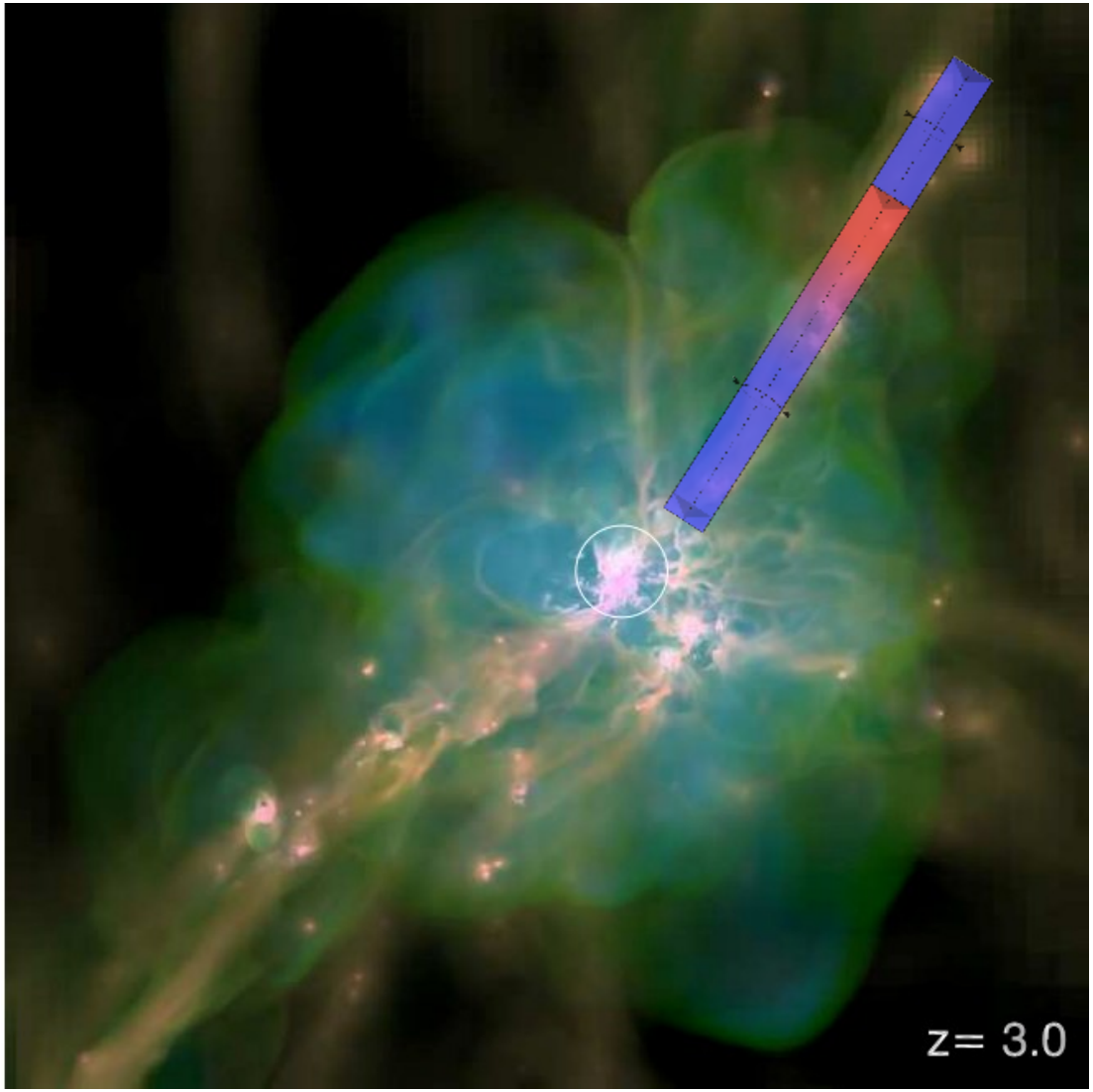
Simulations show filaments infalling toward galaxies

Characteristics

- WNM driven through the halo
- “Virial” shock propagating outwards
- Mass- and redshift-dependent
- Cooling and gravitational pull →
    - Homogeneous core
    - Laminar flow

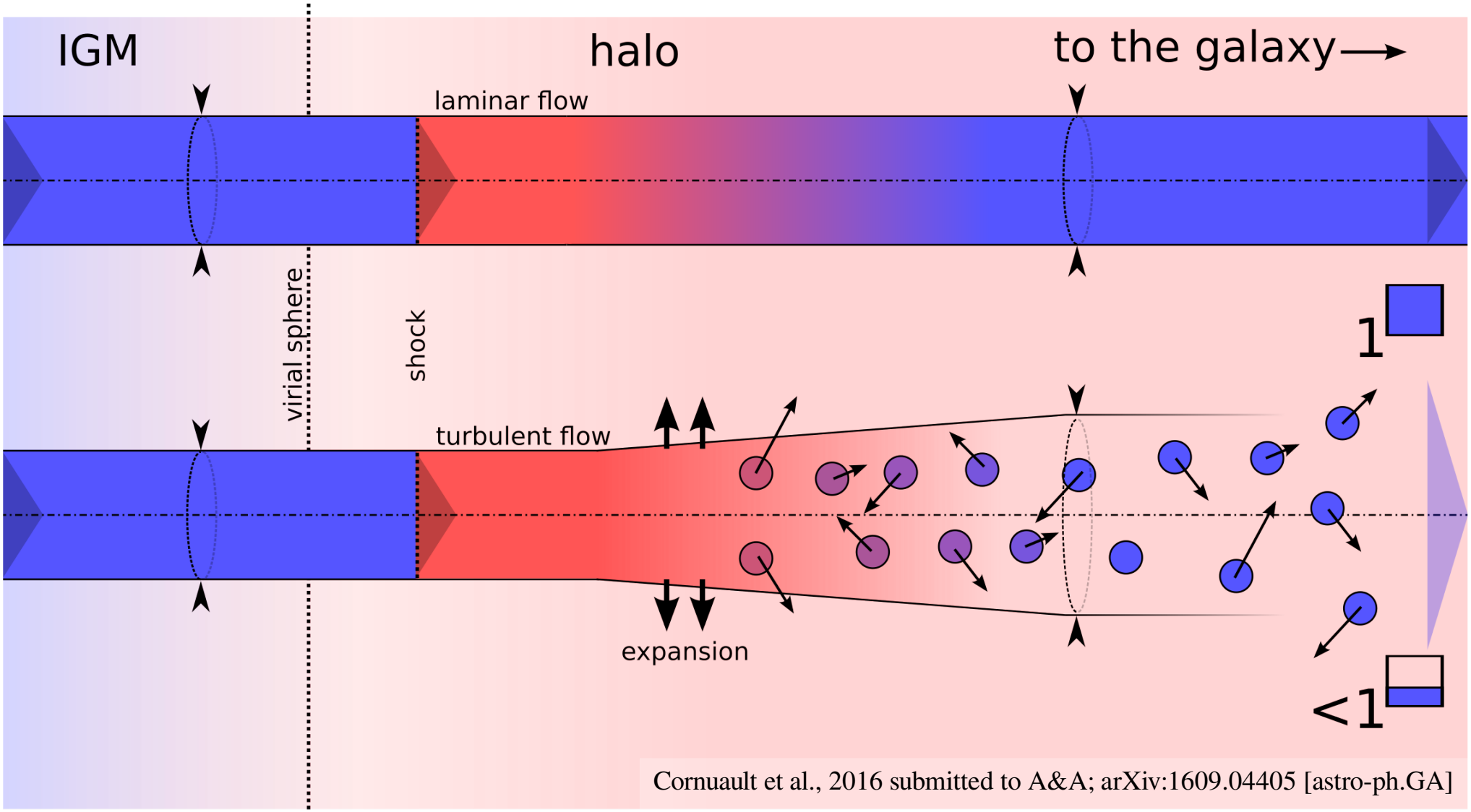
Challenges

- Limited numerical resolution
    - Small scales (eg. Field’s) unresolved
    - Artificial viscosity caps maximal *Re*
- Not observed in known probed halos



Simulation from: T. Kimm, R. Cen, J. Devriendt, Y. Dubois, A. Slyz, 2015

Competing timescales drive the fate of the flow



Cornuault et al., 2016 submitted to A&A; arXiv:1609.04405 [astro-ph.GA]

e.g. $M_H \sim 10^{13} M_o$, z~2