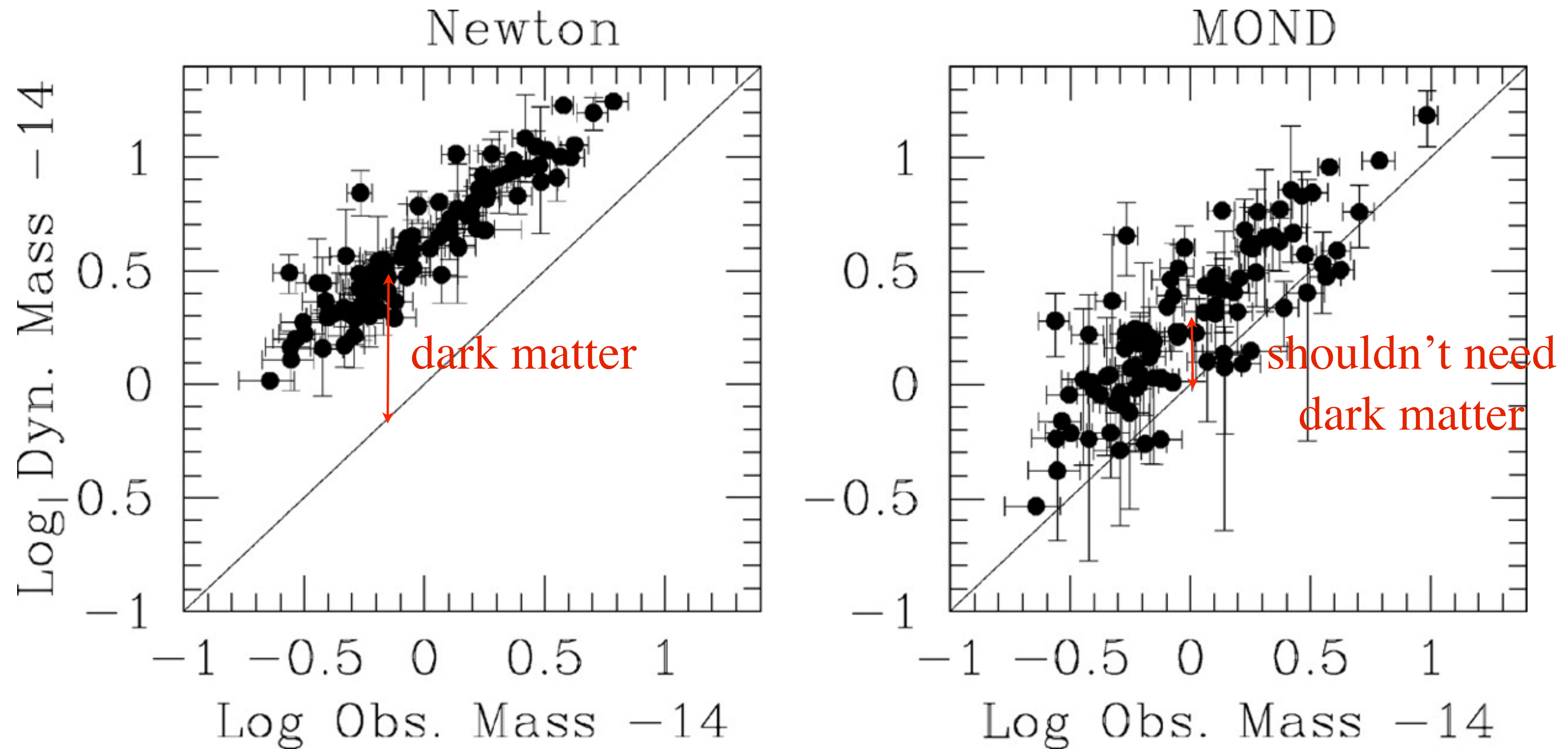


Clusters of galaxies

a persistent problem for MOND



(Sanders & McGaugh 2002)

Coma Cluster

A rich cluster of galaxies contains hundreds of individual galaxies and often contains a very hot intracluster medium of X-ray emitting plasma

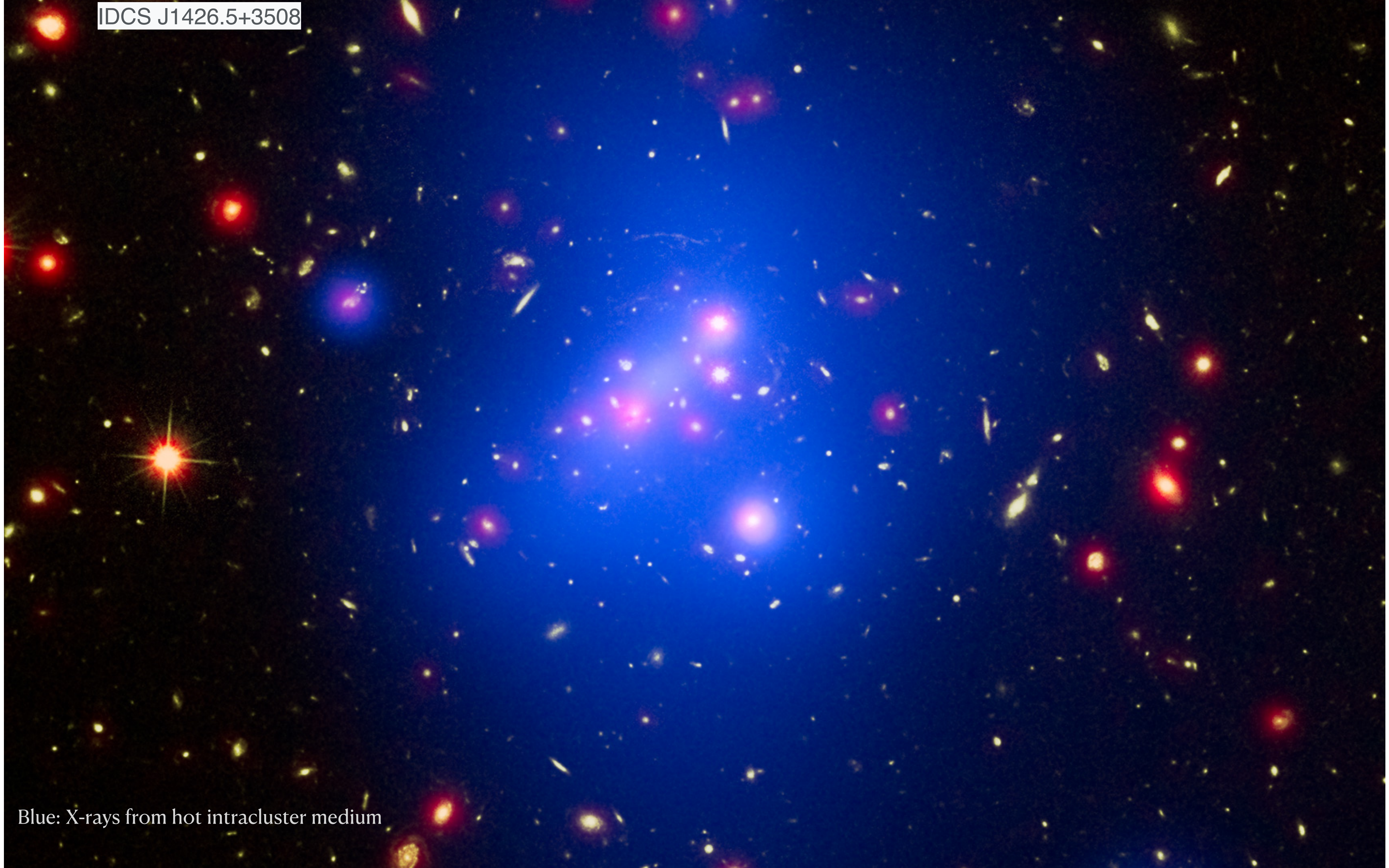


KuriousGeorge

4 distinct measures of mass indicate a mass discrepancy:

1. velocity dispersion, 2. gravitational lensing, 3. hydrostatic equilibrium of X-ray gas, and 4. the Sunyaev-Zel'dovich effect

IDCS J1426.5+3508



Chandra

Blue: X-rays from hot intracluster medium

SMACS J0723.3-7327



JWST

Arcs: images of background galaxies distorted by gravitational lensing