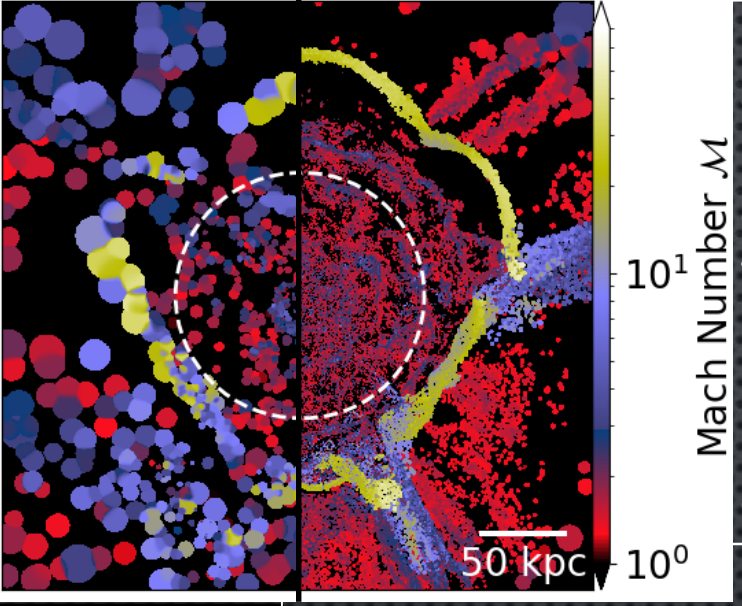
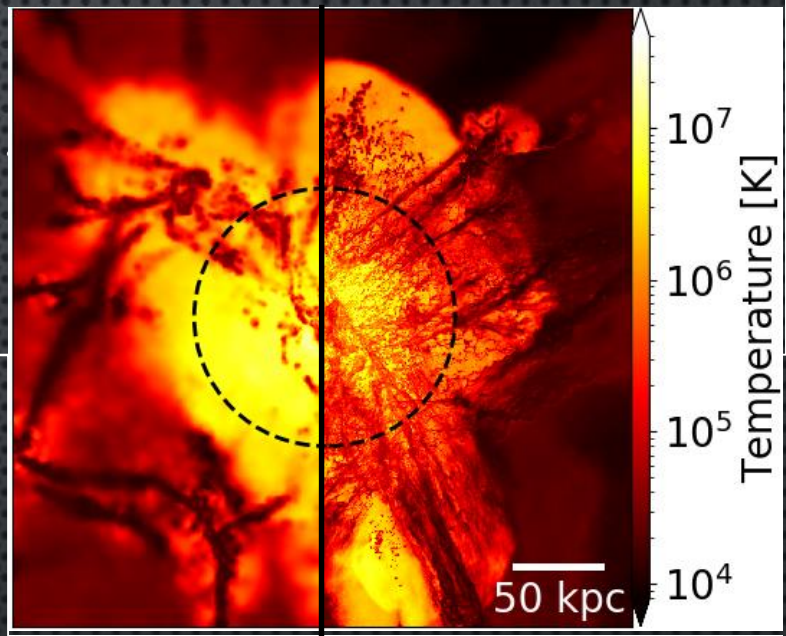
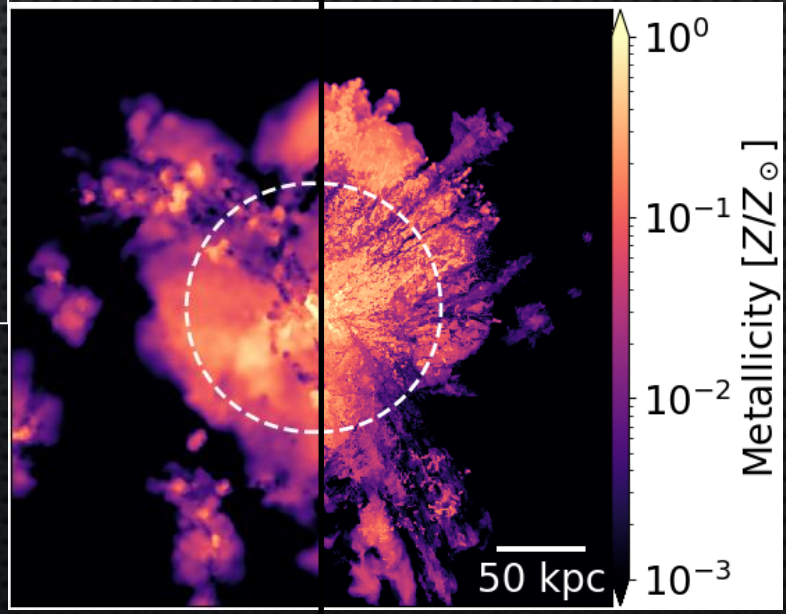


Recent observations have detected a multiphase circumgalactic medium, even in massive galaxies with significant shock heating (*e.g.* Rudie et al. 2012, Rubin et al. 2015). Hydrodynamical simulations have found that gas flows onto haloes take the form of cold filamentary accretion coexisting with a hot halo (*e.g.* Kereš et al. 2005, Dekel et al. 2009). However in typical simulations, resolution is poor in halo outskirts where this accretion occurs.



We have developed a novel shock refinement scheme within AREPO (Springel 2010), where resolution is increased on-the-fly near to shocks. For a 10^{12} $M_\odot$ halo at z=6, this particularly targets resolution at the accretion shocks (in yellow-white in the top-left figure), which are much sharper in the shock refined run (right) compared to the base run (left). Cool, metal-poor primordial filaments are much more prevalent within the hot halo when our scheme is active (shown in the figures on the right), leading to a much more multiphase CGM closer to observations.



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Resolving shocks & the multiphase CGM

Jake Bennett & Debora Sijacki

IoA & KICC, University of Cambridge

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