

T10b

## Unveiling the Gas Dynamics of Dark Group NGC 1407

Su Yuanyuan (University of Alabama), Gu Liyi (SJTU, University of Tokyo), Raymond E. White (University of Alabama), Jimmy Irwin (University of Alabama)

The nearby group NGC1407 is one of the darkest systems in the local Universe. If the second-brightest member galaxy NGC1400 (with a radial velocity of  $1100 \text{ km s}^{-1}$  relative to NGC1407) is bound to the system, the already controversial total mass of the system becomes even greater. Our analysis of *XMM-Newton* spectral imaging data suggest that the group atmosphere centered on NGC1407 is being heated by a high speed collision with NGC1400. However, contrary to this scenario, a possible galactic wake of NGC1400 is found in the direction of NGC1407 implying that NGC1400 is moving away from NGC1407, which casts more shadow over this already mysterious system. We present detailed temperature and metal abundance maps of this system and discuss the possible merger/wake scenarios that can account for the observed temperature/abundance substructure.