

Title

**ESO 437-44**

Abstract

Giant Low Surface Brightness (GLSB) galaxies hold one of the keys to our incomplete paradigms of galaxy formation and evolution. Their extended, low luminosity yet incredibly gas rich disks ( $M_{\text{disk}} \sim 10^{10} M_{\text{sun}}$ ,  $D_{\text{disk}} \sim 200 \text{ kpc}$ ) puzzle current models that argue between secular and merger-driven growth of these spirals, both challenged by the strict condition under which both scenarios can reproduce observed physical and structural properties. We propose to observe ESO 437-44, a GLSB dominating a group of galaxies infalling in the Hydra I cluster from its southern filament, that could be the biggest and HI-richer galaxy in the nearby universe. ESO 437-44's unprecedented connection to a cluster entails the analysis of the first GLSB in the context of a dense cluster environment. Its location close to a filament and the possible minor merger with its neighbor LEDA 31868 makes it simultaneously a good advocate for both evolutionary models. A detailed kinematic and structural study of its gas disk could provide vital restrictions to models for the origin and evolution of GLSB across diverse environments.