The evolution of S0s with UV bright rings A SWIFT-UVOT study

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Abstract. We report about an ongoing study of the evolution of 24 S0s with UV-bright ring/arm-like structures observed with SWIFT-UVOT and interpreted via SPH simulations with chemo-photometric implementation.

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1. Introduction

A significant fraction of S0s is far from being passively evolving. Signatures of activity (e.g. star formation/AGN) maximize their presence in their centre (e.g. Rampazzo et al. 2013). However, spectacular signatures of activity have been extensively mapped by GALEX. FUV bright rings, pseudo-rings and arm-like structures in the disk, shells and tails in the galaxy outskirts are revealed (Thilker et al. 2007; Salim & Rich 2010; Marino et al. 2011). Sometimes UV-structures are barely visible in the optical bands.

2. The project and few preliminary results

We select from the ARRAKIS compilation of galaxies with rings (Comerón et al. 2014) 24 S0s observed with SWIFT-UVOT. We obtained their luminosity profiles and structure and their SED. These information single out, among a grid of SPH simulations with chemo-photometric implementation, the evolution of these S0s providing the history of the development of their ring/arm-like structures (see Mazzei et al. 2014a; Mazzei et al. 2014b). These are found in UV images of S0s with different family classification (see e.g. Laurikainen et al. 2010). UV bright ring/arm-like structures have different shapes, from very diffuse (IC 2006) to filamentary (NGC 1543), to irregular (NGC 1533). SPH simulations suggest that mergers and interactions drive the evolution of ring/arm-like structures which mark transient phases during the galaxy assembly history.

References

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