

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.

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