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Título: Spectropolarimetric confirmation of the changing type Seyfert galaxy ESO362-G018
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Resumen:
ESO362-G018 is an active galactic nucleus (AGN) which is classified as a Seyfert 1.5 galaxy, e.g. by Bennert et al. (2006). However, we have discovered an optical spectrum of this source which was taken during the 6dF Galaxy Survey, but it does not show the broad Balmer lines required to classify it as Seyfert 1 galaxy.

On the other hand, the results obtained by Agis-Gonzalez et al. (2014) in a X-ray analysis of this same source reveal that the inclination of ESO362-G018 i=53±5o is consistent with the picture of an AGN looked through the upper layers of a clumpy, dusty torus. Thus, according to the Unification Models of AGN and the clumpy nature of the torus, our interpretation of the different spectra is the following one. On 30th of January of 2003 (when the spectrum belonging to the 6dF survey was obtained), our line of sight intercepted a torus clump with much greater column density than its environment. Accordingly, the nucleus and the broad line region (BLR) would be obscured. This allowed only the narrow emission lines to emerge from the narrow line region (NRL). Otherwise, on 18th of September of 2004 (when the spectrum by Bennert et al. 2006 was obtained) there is no clump to intercept and the BLR is not obscured so that the broad Balmer emission lines could be detected.

Polarimetric observations were fixed to confirm this scenario. Polarimetry does not only measure the amount of light per unit of time or wavelenght, but also how the electric oscillates. At the same time, electric field oscillations are perturbed by mechanism or elements that breaks the symmetry in the radiative source. Thus, polarimetry becomes a powerful tool as it can afford information on the geometry structures that are below the resolution limit of telescopes, like AGNs.

In these new data, we could find the source in any of both stages: type 2, if we intercept a fortuitous torus clump, or type 1, if there is not any clump passing through our line-of-sight. Both cases will confirm the described picture. In case of discovering type 1 stage, spectropolarimetric data will provide us a polarized classification and help constrain established scattering models, e.g. Smith et al. (2002). If Type 2 stage is encountered, polarization should reveal polar scattering but also provide a periscopic view of the BLR so that broad lines seen from the top could be compared to broad lines seen along the line of sight.