

NIRS0S: Observations of early-type galaxy secular evolution spanning the Sa/S0/disky-E boundaries

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Abstract. NIRS0S (Near-IR S0 galaxy Survey), is a K -band survey of ~ 200 early-type disk galaxies, mainly S0s, 2-3 mag deeper than the 2Micron All Sky Survey. In depth morphological analysis was done, in which multi-component structural decompositions played an important role. Possible implications to internal dynamical galaxy evolution were discussed. S0s were suggested to be former spirals in which star formation has ceased, forming a parallel sequence with spirals (see Fig. 1). If that evolution is faster among the brighter galaxies, the observed magnitude difference between the barred and non-barred S0s could be understood. Bars are suggested to play a critical role in such evolution. For example, the inner lenses in the bright non-barred S0s can be explained as former barlenses (inner parts of bars), in which the elongated bar component has dissolved. We suggest that the last destructive merger event happened at a fairly large redshift.

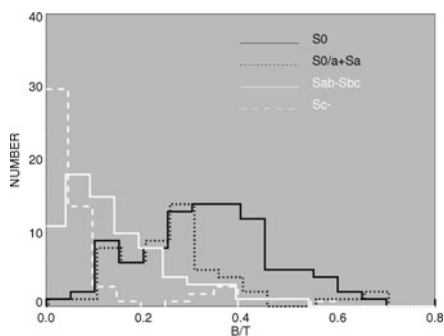


Figure 1. Many S0s have small B/T flux-ratios, overlapping even with the late-type spirals (Laurikainen *et al.* 2010). This evidence points to a ‘parallel sequence’, where S0s are spread throughout the Hubble sequence in a similar manner as spirals (S0a, S0b, S0c, see van den Bergh 1976; Cappellari *et al.* 2011; Kormendy & Bender 2012).

References

- Cappellari, M. *et al.* 2011, *MNRAS* 416 1680
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