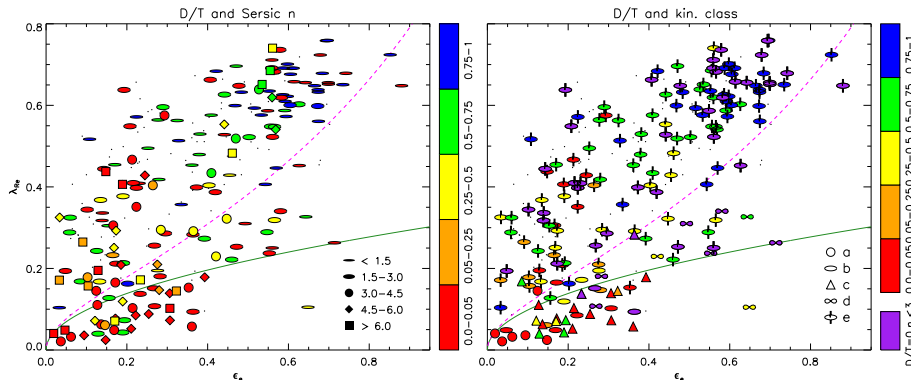


# Pancakes among massive galaxies

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**Summary.** Excluding those unsettled systems undergoing mergers, bright galaxies come in two flavours: with and without discs. In this work we look for photometric evidence for presence of discs and compare it with kinematic results of the ATLAS<sup>3D</sup> survey (Cappellari et al. 2011). We fit Sérsic (1968) function to azimuthally averaged light profiles of ATLAS<sup>3D</sup> galaxies to derive single component fits and, subsequently, we fit a combination of the Sérsic function (free index  $n$ ) and an exponential function ( $n=1$ ) with the purpose to decompose the light profiles into a "bulge" and a "disc" components (B+D model) of all non-barred sample galaxies. We compare the residuals of the B+D models with those of the single Sérsic fits and select the B+D model as preferred only when the improvement is substantial and there are no correlations within residuals. We find that the high angular momentum objects (fast rotators) are disc dominated systems with bulges of typically low  $n$  (when their light profiles can be decomposed) or are best represented with a single Sérsic function of a low Sérsic indices ( $n < 3$ ). Single component systems with large Sérsic indices are characteristic for low angular momentum objects (slow rotators).



**Figure 1.** Angular momentum  $\lambda_R$  versus ellipticity  $\epsilon$  of ATLAS<sup>3D</sup> galaxies. *Left:* Symbols represent Sérsic indices as shown on the legend. *Right:* Symbols show different types of kinematics from Krajnović et al. (2011) and are described in the legend: *a* - non rotating galaxies, *b* - featureless non-regular rotators, *c* - KDC, *d* - counter-rotating discs, and *e* - regular rotators. On both plots colours quantify D/T ratios, as shown on the respective colour bars.

## References

- Cappellari, M. et al. 2011, *MNRAS*, 413, 813  
 Sérsic, J. L., 1968, Atlas de galaxies australes, Observatorio Astronomico, Cordoba, Argentina