

We used the results of the single Sérsic fits as first-guess parameters to implement more complex models, intended to separately account for different galaxy components. In particular, we wanted to model bulges and disks with Sérsic and exponential (exDisk) profiles respectively, and AGNs with a PSF component. The evaluation of the fit results, and the disk/bulge separation procedure based on them will be presented in Section 3.4. These additional, more complex models were:

- Sérsic + PSF
- Sérsic + exDisk
- Sérsic + exDisk + PSF

An accurate estimate of the first-guess input magnitude of each model component turned out to be critical to guarantee the convergence of these fits. We calculated the brightness of each component by re-distributing the integrated flux of the Sérsic model: in the case of Sérsic + PSF, the PSF component was initially attributed 1/10 of the total flux; in the other cases the flux was re-distributed equally among the components. No constraints were applied in this stage, while contaminating objects were fit as above.

As an example, we report the fit results for the object NGC 3306 in Figure 3.4, where we show the data images (left panels), the models (central panels), and the model-subtracted images (“residuals”; right panels), for the models described in this section. The fit statistics for each model are reported in Table 3.3. This specific target contains an AGN (see Table 3.5), and the *best-fit model* (selected as described in Section 3.4) turned out to be the Sérsic + psfAgn + exDisk. The *best-model fit* results for the entire SFRS sample and the corresponding statistics are shown in Figure B.1.

FIT RESULTS FOR NGC 3306		
Model	χ^2_ν	σ^2_{XS}
(1)	(2)	(3)
Sérsic	1.107	1.722(0.120)
Sérsic + psfAgn	1.107	1.657(0.118)
Sérsic + exDisk	1.107	1.770(0.121)
Sérsic + psfAgn + exDisk	1.106	1.472(0.113)

Table 3.3: Statistical results of the GALFIT fits for the object NGC 3306, performed using the models presented in this section.

(¹) Fit model. (²) Reduced χ^2 . (³) Excess variance (described in Section 3.4).