ANISOTROPY AND MASS IN ELLIPTICAL GALAXIES

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Changes in the anisotropy of the stars and changes in the galaxy potential due to dark matter manifest themselves differently in the observable line (velocity) profile shapes (VPs) of elliptical galaxies (Gerhard 1993, MNRAS **265**, 213). In Fig. 1, this is illustrated for a set of realistic spherical models (Jeske *et al.* 1995, preprint).

Radially (tangentially) anisotropic distribution functions lead to more peaked (more flat-topped) VPs than in the isotropic case; i.e., to $h_4 > (h_4)_{\rm iso}$ and $h_4 < (h_4)_{\rm iso}$, respectively. In an inhomogeneous stellar system, an increase in radial (tangential) anisotropy at intrinsic radius r is accompanied by an increase (decrease) of h_4 at projected radius $R \simeq r$. As the mass of the model at large r is increased, at constant anisotropy both the projected dispersion and h_4 increase. Increasing β at constant potential, on the other hand, lowers σ and increases h_4. Thus by modelling σ and h_4 both $M(r)$ and β can in principle be found.

We are currently applying these ideas to several E0 galaxies for which line profile measurements to $\sim 2R_e$ have been obtained by the techniques described in Bender, Saglia & Gerhard 1994 (MNRAS **269**, 785).

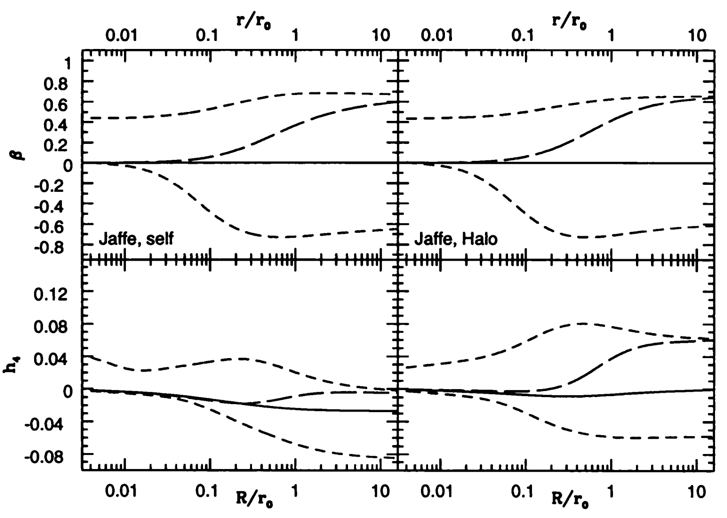

Figure 1. Anisotropy parameter β and VP-parameter h_4 for representative Jaffe models in self-consistent (left) and halo potential (right). Shown are the isotropic model (solid) and several quasi-separable, radially and tangentially anisotropic models (dashed).