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Abstract. The direct fit of theoretical pulsation frequencies to the observations (i.e. stellar seismology) proved to be a very efficient tool in the study of solar oscillations. In the case of other multiperiodic variables, like δ Scuti stars, Ap stars and white dwarfs the method suffers from the disturbing abundance of possible nonradial modes. Colour and/or radial velocity (or line profile) measurements can narrow down the number of possibilities, but these kinds of data are not often available with the desired accuracy and sampling rate. Since pulsational frequencies are the most readily and accurately computed and measured quantities of pulsation, we address the question of the accurate fit of the nonradial pulsation frequencies to the observations in the case of δ Scuti stars.

The parameters we want to infer from the frequency fits are mass, effective temperature, radius and, if rotation is included, rotational frequency.

Available pulsation models are not numerous. The most complete survey is that of Fitch (1981, Ap.J.,249, 218). We took his interpolation formula (7) for the logarithm of the period in the case of no rotation.

Rotation is probably an important factor in limiting the amplitudes and determining the frequency patterns of multi-periodic δ Scuti stars, since they are in general fast rotators (Breger, 1979, P.A.S.P.,91, 5). Therefore, rotation is included in the second order approximation of Saio (1981, Ap.J.,244, 299).

Distribution functions of the goodness of fits were computed in a few examples of four and five frequency fits. In the case of no rotation there were only a few cases of interest even for moderate accuracy (0.1 - 0.5 c/d) of fit. Though in the case of rotation the number of good fits increased, it is suggested that accurate theoretical models (like those available in the solar studies) would be able to decrease this number and make δ Scuti star seismology feasible.

A more detailed discussion will be presented elsewhere (Kovacs, 1989, in preparation).

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