Roche equilibrium figures for inhomogeneous bodies

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Abstract

The present work deals with the application of the classical theory of equilibrium figures of two rotating liquid masses following the Roche formalism to the case where bodies exhibit a radially stratified internal density distribution so that they can be considered as inhomogeneous bodies. The derived ellipsoidal shape solutions are applied to five real systems of equal-sized synchronous asteroids. Furthermore, internal inhomogeneity puts strong constraints on the surface grain density.