A point of rigid body is pivoted in way that the body can rotate freely about a horizontal axis passing thorough the point of suspension. Show that the frequency of small oscillations is given by

$$\omega^2 = \frac{Mgh}{Mh^2 + I_1 n_1^2 + I_2 n_2^2 + I_3 n_3^2}$$

where I_1, I_2, I_3 are principal moments of inertia about the centre of mass and h is distance of centre of mass from the point of suspension. Landau*[1]

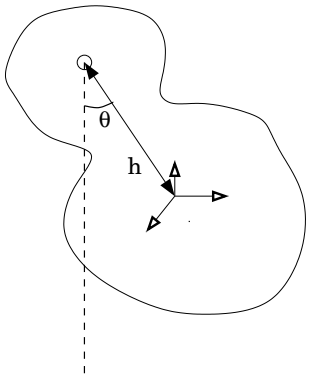

Fig. **1**

References

[1] Landau and Lifshitz. *Mechanics*. Reed Elsevier Private Limited, New Delhi, 3rd edition, 1976.