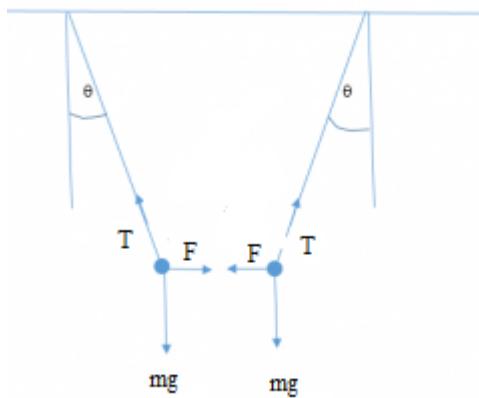


Answer on Question #65088-Physics-Mechanics-Relativity

Two metallic spheres of mass M are suspended by two strings each of length L . The distance between upper ends of strings is L . The angle which strings will make due to mutual attraction sphere is (if each mass horizontally moved by distance of $L/4$ mutual attraction)

Solution

$$F = \frac{Gmm}{\left(\frac{L}{2}\right)^2} = \frac{4Gm^2}{L^2}$$



From the graph we can see that

$$\tan \theta = \frac{F}{mg}$$

$$\tan \theta = \frac{4Gm}{gL^2}$$

The angle which strings will make due to mutual attraction sphere is

$$\theta = \tan^{-1} \frac{4Gm}{gL^2}$$

Answer provided by <https://www.AssignmentExpert.com>