AFRICAN INSTITUTE FOR MATHEMATICAL SCIENCES

Problem solving in Physics: Problem Set dga-04 (Optional)

This problem set is voluntary.
If you wish, send solutions to your tutor by 00h01 Monday 7 November 2011.

1) Given a point P in space, and given a piece of malleable material of constant uniform density, how should you shape and place the material in order to create the largest possible gravitational field **H** at P?

Find a formula for this shape, and find its dimensions. Calculate (by integration, or numerical integration) the gravitational field H and the point P on the surface, and compare this to a spherical shape of the same mass and volume and uniform density.

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