

Indian Institute of Science Education and Research, Mohali

Cosmology and Galaxy Formation (PHY654)

(January – April 2016)

Tutorial 1

Jan.15, 2016

1. Consider the gravitational potential:

$$\varphi = \frac{1}{2}v_c^2 \ln [R_c^2 + R^2]$$

Here R_c is the core radius and R is the distance from the centre. Calculate the density profile that leads to this potential by solving the Poisson equation. [2]

2. Calculate the circular velocity $v_{circ}(R)$ for this potential. [1]