SOLUTIONS FOR EQUILIBRIUM OF MODEL GALAXIES

Prescribe temperature $T(R,Z)$ (Eq. (8)) and potential $\phi(R,Z)$ (Eqs. (9) & (10))

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Solve for $v_\phi(R,Z)$ (Eq. (6)) assuming that $v_\phi \rightarrow 0$ at ∞

- ✓ Obtain $v_\phi(R)|_{z=0}$ from last step
- ✓ Create a 1D interpolation table of $v_\phi(R)|_{z=0}$

- ✓ Numerically integrate the integrands in the exponential terms in Eq. (5) using the analytical forms of $\frac{\partial \phi}{\partial R}$ and $\frac{\partial \phi}{\partial Z}$ and v_ϕ from interpolation table
- ✓ Obtain the density field $\rho(R,Z)$ as in Eq. (5), with the choice of value of $\rho(0,0)$.

Set the pressure $P(R,Z) = \rho(R,Z) \times c_s^2(R,Z)$ where, $c_s^2(R,Z) = \frac{k_B T}{\mu m_p}$