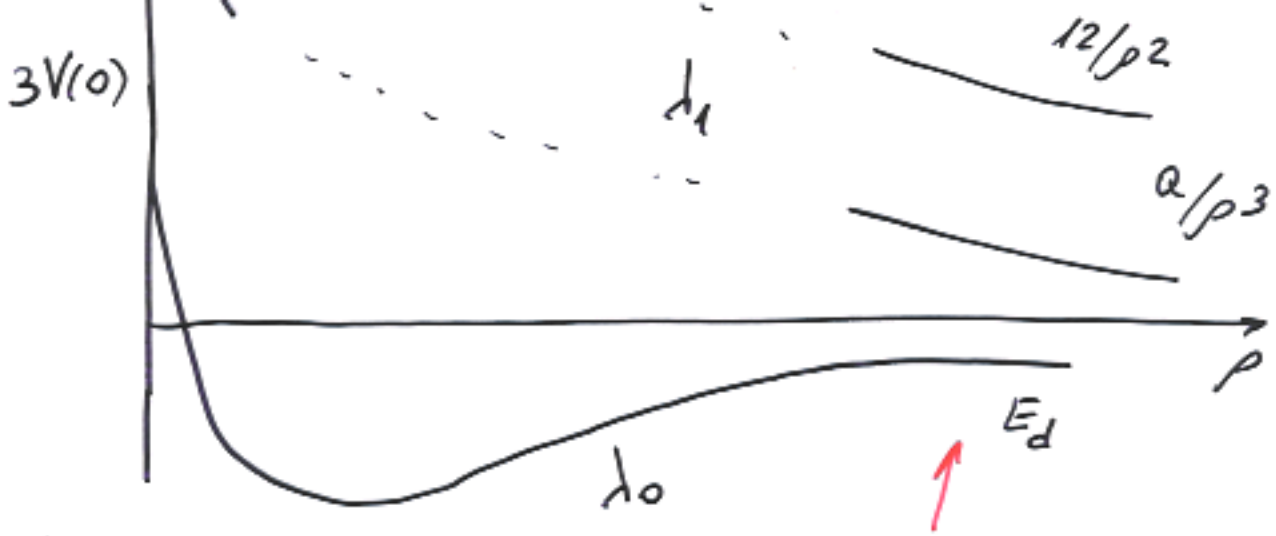

A = 3

$\phi_0(\rho,\Omega) \to \rho^{3/2}\,\phi_d(r)$

* For bound states $\ell \simeq 6$ is enough

For scattering states the equation is ($\ell = 0$)

$$\left(\frac{\partial^2}{\partial\rho^2} + \frac{5}{\rho}\frac{\partial}{\partial\rho} - \frac{\lambda_0(\rho)}{\hbar^2/m} - k^2\right) u_0(\rho) = 0$$

for $\rho \to \infty$

$$\left(\frac{\partial^2}{\partial\rho^2} + \frac{5}{\rho}\frac{\partial}{\partial\rho} + k_0^2\right) u_0(\rho) = 0 \qquad k_0^2 = k_d^2 - k^2$$

$$u_0(\rho) \longrightarrow \rho^{-5/2}(\sin k_0\rho + \tan\delta \cos k_0\rho)$$

$$\psi = u_0(\rho)\,\phi_0(\rho,\Omega) \xrightarrow[\rho\to\infty]{} \left(\frac{\sin k_0\rho + \tan\delta\cos k_0\rho}{\rho}\right)\phi_d(r)$$

$$= \phi_d(r)\left(\frac{\sin k_0 x_1 + \tan\delta\cos k_0 x_1}{x_1}\right)$$