





ž This is a second order differential inhomogeneous differential equation, so the solution is  $x(s) = x_0 C(s) + x'_0 S(s) + \delta d(s)$  $x'(s) = x_0 C'(s) + x_0' S'(s) + \delta d'(s)$ Where d(s) is the solution particular solution of the differential equation  $d'' + Kd = \frac{1}{\rho}$ • We solve this piecewise, for K constant and find K > 0:  $d(s) = \frac{1}{\rho K} \left( 1 - \cos \sqrt{Ks} \right)$  $d'(s) = \frac{1}{\rho\sqrt{K}}\sin\sqrt{K}s$  $K < 0: \quad d(s) = -\frac{1}{\rho K} \left( 1 - \cosh \sqrt{K} s \right)$  $d'(s) = \frac{1}{\rho \sqrt{K}} \sinh \sqrt{K} s$ Recall  $x'' + \left(\frac{1}{\rho^2} + B'_y\right) x \Longrightarrow K = \left(\frac{1}{\rho^2} + B'_y\right)$ Off Momentum Particles USPAS, Hampton, VA, Jan 26-30, 2015 4















