Scaling the Dependent Variable (Revised)

Consider the following system:

\[ \epsilon u'' - (1 - x^2)u = -1, \quad u(-1) = u(1) = 0. \]  

(1)

Computed solution of (1) with \( \epsilon = 0.01 \). In decreasing order of thickness:
\( \epsilon = 0.048, 0.024, 0.012, 0.006, 0.003 \). Note the layer narrows as \( \epsilon^{1/3} \) and the peak grows as \( \epsilon^{-1/3} \).