

Figure 1 is a log-linear plot showing the convergence of the numerical solution. The x-axis represents the Grid size (n_x) on a logarithmic scale, ranging from 2^4 to 2^8 . The y-axis represents the Error on a logarithmic scale, ranging from 10^{-10} to 10^{-1} . The plot displays two data series: a green dashed line with '+' markers and a blue dashed line with square markers. The green series shows a sharp decrease in error from 10^{-1} at $n_x = 2^4$ to 10^{-9} at $n_x = 2^6$, followed by a slight increase to 10^{-8} at $n_x = 2^7$. The blue series shows a constant error of 10^{-10} for $n_x = 2^7$ and $n_x = 2^8$. A light green shaded region indicates the uncertainty interval, which is narrow for $n_x = 2^4$ and 2^5 but widens significantly for $n_x = 2^6$ and 2^7 .

