

Fig. 4.8. Chebyshev collocation first-derivative eigenvalues computed with 64-bit precision. Results contaminated by round-off error are indicated

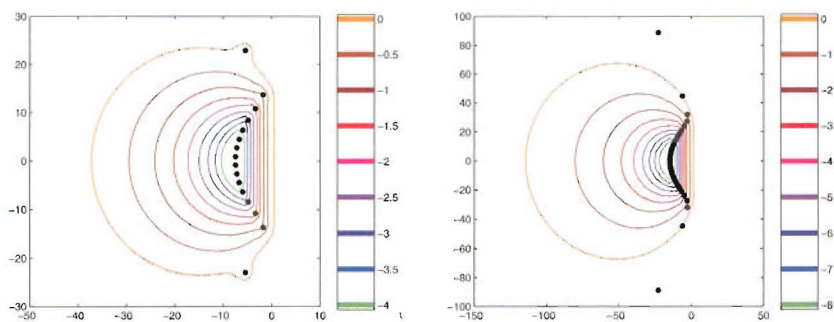


Fig. 4.9. ϵ -pseudospectra, A_ϵ , of Chebyshev collocation first-derivative matrix. A_ϵ is plotted for $\epsilon = 10^{-4}, 10^{-3.5}, \dots, 10^0$ for $N = 16$ (left) and for $\epsilon = 10^{-8}, 10^{-7}, \dots, 10^0$ for $N = 32$ (right). The innermost isoline corresponds to the minimum value of $\log_{10} \epsilon$, the outermost to the maximum value of $\log_{10} \epsilon$. These are -4 and 0 in the left-hand figure, and -8 and 0 in the right-hand figure

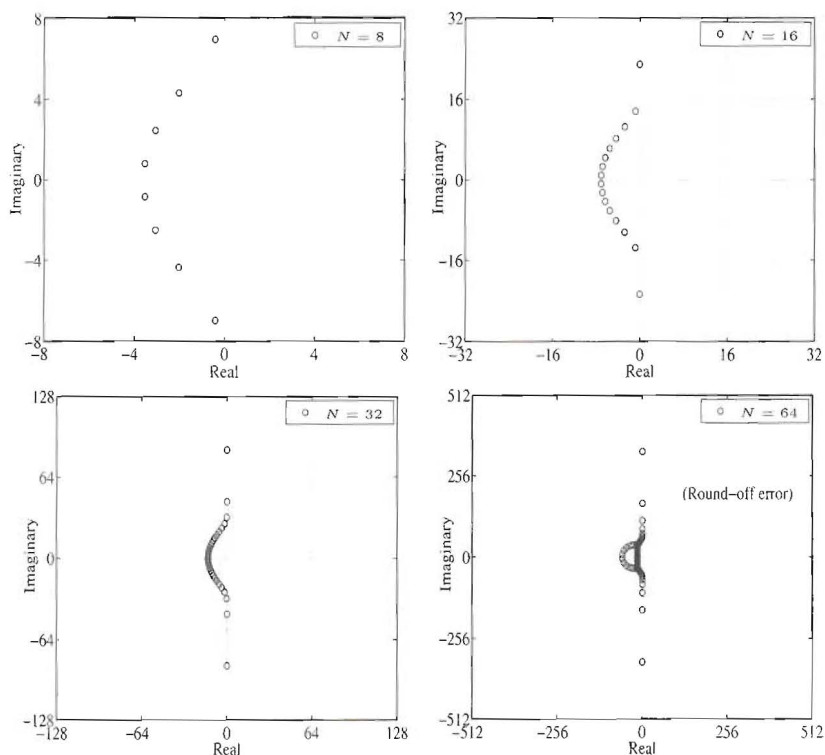


Fig. 4.10. Legendre collocation first-derivative eigenvalues computed with 64-bit precision. Results contaminated by round-off error are indicated

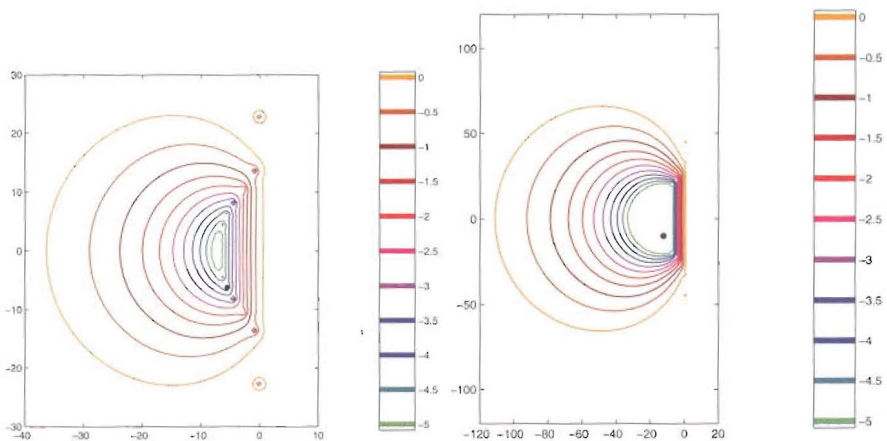


Fig. 4.11. ϵ -pseudospectra, Λ_ϵ , of Legendre collocation first-derivative matrix. Λ_ϵ is plotted for $\epsilon = 10^{-5}, 10^{-4.5}, \dots, 10^0$ for both $N = 16$ (left) and $N = 32$ (right). The range of the isoline values are $[-5, 0]$ for both figures