

## 2.1

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2026 年 2 月 10 日

说明 1. 定理 1 (加法的相对舍入误差定理) 证明过程中

$$\begin{aligned} & \{[S_k(1 + \rho_k) + x_{k+1}](1 + \delta_k) - (S_k + x_{k+1})\}/S_{k+1} \\ &= \delta_k + \rho_k(S_k/S_{k+1})(1 + \delta_k) \end{aligned}$$

证明：

$$\begin{aligned} & \{[S_k(1 + \rho_k) + x_{k+1}](1 + \delta_k) - (S_k + x_{k+1})\}/S_{k+1} \\ &= \{(S_k + S_k\rho_k + x_{k+1})(1 + \delta_k) - S_k - x_{k+1}\}/S_{k+1} \\ &= \{S_k + S_k\rho_k + x_{k+1} + S_k\delta_k + S_k\rho_k\delta_k + x_{k+1}\delta_k - S_k - x_{k+1}\}/S_{k+1} \\ &= \{S_k\rho_k + S_k\delta_k + S_k\rho_k\delta_k + x_{k+1}\delta_k\}/S_{k+1} \\ &= \{\delta_k(S_k + x_{k+1}) + \rho_k S_k(1 + \delta_k)\}/S_{k+1} \\ &= \{\delta_k S_{k+1} + \rho_k S_k(1 + \delta_k)\}/S_{k+1} \\ &= \delta_k + \rho_k(S_k/S_{k+1})(1 + \delta_k) \end{aligned}$$