

# Σ Cos 版 NLAST: 来源 及 U 能量分布误差 E(Δ|U|)(z)

三味书屋



百草园

解析解 - NLCOV:

$$\iiint \mathcal{F}_{3D}[M_{\text{eff}}(\mathbf{r})] \cdot \left\{ \iint \mathcal{F}[E_{10}] \cdot \mathcal{F}[E_{20}] \cdot \frac{e^{i(k_{1z}+k_{2z}+g_z)z} - e^{ik_{3z}z}}{(k_{1z}+k_{2z}+g_z)^2 - k_{3z}^2} \cdot dk_{1x} dk_{1y} \right\} \cdot dg_x dg_y dg_z$$

依据:  $\frac{e^{i\Delta k_z z} - 1}{\Delta k_z} = \text{sinc}\left(\frac{\Delta k_z z}{2}\right) \cdot e^{i\frac{\Delta k_z z}{2}} \cdot iz$ 

$$\text{sinc}(x) = \sum_j a_j \cos\left(\frac{x}{b_j}\right) \approx \cos\left(\frac{x}{\sqrt{3}}\right) \approx \exp\left(-\frac{x^2}{6}\right) \approx \frac{1 - \frac{7}{60}x^2}{1 + \frac{3}{60}x^2}$$

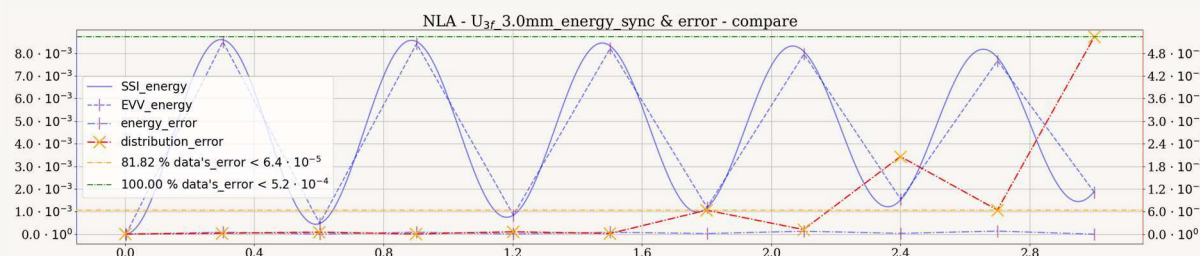
Σ Cos - NLAST:

$$\sum_j a_j \int \mathcal{F}\left[\mathcal{F}_z[M_{\text{eff}}(\mathbf{r})] \cdot E_{1\frac{b_j \pm 1}{2b_j}z} E_{2\frac{b_j \pm 1}{2b_j}z}\right] \cdot \frac{e^{ig_z \frac{b_j \pm 1}{2b_j}z}}{k_{1z} + k_{2z} + g_z + k_{3z}} \cdot dg_z \cdot e^{ik_{3z} \frac{b_j \pm 1}{2b_j}z} \cdot iz$$

对照组 - NLSSI

步长: 3.5 μm

采样数: 862



实验组 - NLAST

步长: 3 mm

采样数: 11

