(a)

Non-uniform voltage grid design

coarse: $\Delta V = 0.1$ V_{mpp} dense $\Delta V = 0.025$

V (V)
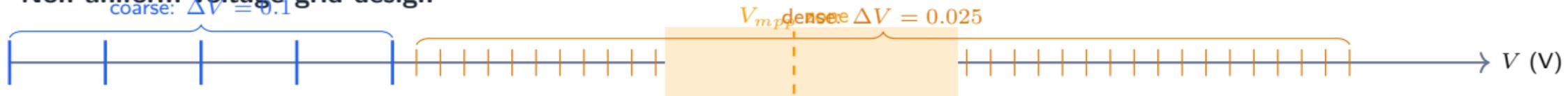
Dense sampling is intentionally placed where curve shape changes fastest (knee/MPP).

(b)

Weighted error definition aligned with physical sensitivity

$$\Delta V_j = V_{j+1} - V_j, \qquad w_j = 1 + (w_{mpp} - 1)\exp\left(-\frac{(V_j - V_{mpp})^2}{2\sigma_w^2}\right)$$

$$\mathcal{L}_{curve} = \frac{\sum_j \Delta V_j \, w_j \, (\hat{I}_j - I_j)^2}{\sum_j \Delta V_j \, w_j}$$

- ΔV_j compensates for non-uniform grid spacing so sparse regions do not dominate numerically.
- w_j can emphasize the knee/MPP regime, where power-output sensitivity is highest.
- Net effect: objective prioritizes physically critical voltage ranges rather than uniform point-count weighting.

Takeaway: resolution + weighting are both focused on the MPP-critical region.