

$$\min_a \frac{1}{2} \sum_{\ell=1}^h \left( \sum_{j=1}^J \sum_{c=1}^C a_j [\omega_j \phi_c]''(x_\ell, \theta_j) - f(x_\ell) \right)^2$$

$\underbrace{\quad}_{\text{'fixed'}}$

$$\frac{1}{2} (a^T H^T H a - b^T H a)$$

$$b \in \mathbb{R}^{n \times 1} \quad H \in \mathbb{R}^{n \times CJ} \quad \left| M_{\ell, m} = [\omega_j \phi_c]''(x_\ell, \theta_j), b_\ell = f(x_\ell) \right|$$

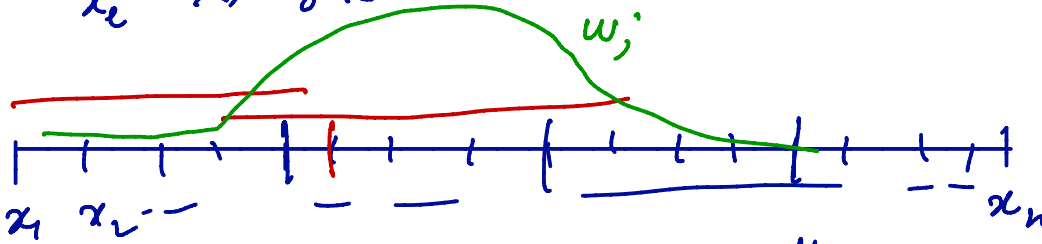
$$m = (j-1)J + c$$

System to be solved  $H^T H a = H^T b$  (normal equation)

$H \rightarrow$  "block" sparse

$\theta_j \rightarrow$  randomized in some interval

$x_\ell \rightarrow$  fixed in a given interval



Decide the center and the width of each domain

$x_j$  either equally spaced or random