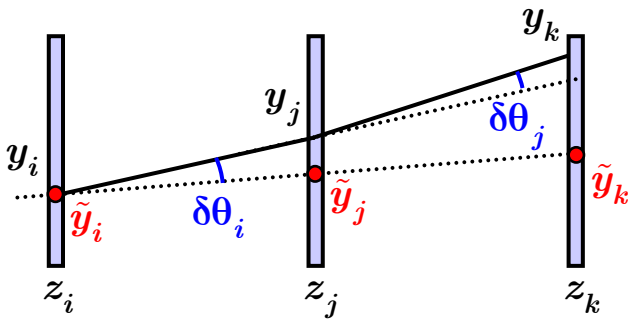
Multiple Scattering

$$V_{nm} = \langle (y_m - \overline{y}_m)(y_n - \overline{y}_n) \rangle$$



- The off-diagonal elements are

$$V_{ij} = \left\langle (y_i - \overline{y}_i)(y_j - \overline{y}_j) \right\rangle = \left\langle (y_i - \tilde{\overline{y}}_i)(y_j - \tilde{\overline{y}}_j + (z_j - z_i)\delta\theta_i) \right\rangle \qquad V_{ij} = 0$$

uncorrelated: <>=0

$$V_{ik} = \langle (y_i - \overline{y}_i)(y_k - \overline{y}_k) \rangle$$

$$= \left\langle (y_i - \tilde{\overline{y}}_i)(y_k - \tilde{\overline{y}}_k + (z_k - z_i)\delta\theta_i + (z_k - z_j)\delta\theta_j) \right\rangle \qquad V_{ik} = 0$$

$$V_{jk} = \langle (y_j - \overline{y}_j)(y_k - \overline{y}_k) \rangle$$

uncorrelated: <>=0

$$= \left\langle (y_j - \tilde{\overline{y}}_j + (z_j - z_i)\delta\theta_i)(y_k - \tilde{\overline{y}}_k + (z_k - z_i)\delta\theta_i + (z_k - z_j)\delta\theta_j) \right\rangle$$

$$= \left\langle (z_j - z_i)\delta\theta_i (z_k - z_i)\delta\theta_i \right\rangle$$

$$V_{jk} = (z_j - z_i)(z_k - z_i)\langle \delta\theta_i^2 \rangle$$