

Orthogonalisation with multiple parameters?

$$u(x, \nu_1, \nu_2) = \sum_{i=1}^{n-1} \underline{\bar{u}}_i \lambda_i^{(1)}(\nu_1) \lambda_i^{(2)}(\nu_2) + \underline{\bar{u}}_n \lambda_n^{(1)} \lambda_n^{(2)}$$

$$= \sum_{i=1}^{n-1} \left(\lambda_i^{(1)}(\nu_1) \lambda_i^{(2)}(\nu_2) + (\underline{\bar{u}}_n \cdot \underline{\bar{u}}_i) \lambda_n^{(1)} \lambda_n^{(2)} \right) \underline{\bar{u}}_i$$

$$+ \left(\underline{\bar{u}}_n - \sum_{i=1}^{n-1} (\underline{\bar{u}}_n \cdot \underline{\bar{u}}_i) \underline{\bar{u}}_i \right) \lambda_n^{(1)} \lambda_n^{(2)}$$

this
compensate
this
so no
information is
lost.

$$\lambda_i^{(1)}(\nu_1) \lambda_i^{(2)}(\nu_2) + (\underline{\bar{u}}_n \cdot \underline{\bar{u}}_i) \lambda_n^{(1)} \lambda_n^{(2)}$$

impossible to write as

$$\tilde{\lambda}_i^{(1)}(\nu_1) \tilde{\lambda}_i^{(2)}(\nu_2) \dots$$