

$$C_\ell(s,s') = \frac{1}{n} \cdot \frac{1}{2\ell+1} \sum_{i=1}^n \sum_{m=-\ell}^{\ell} f_{\ell ms}^{(i)} \overline{f_{\ell ms'}^{(i)}} \in \mathbb{C}^{S(\ell) \times S(\ell)}$$