$$\delta N_{cg}(\vec{x}) = \mathcal{N}(\vec{x}) - \langle \mathcal{N} \rangle = \zeta_{cg}(\vec{x}) = \frac{1}{(2\pi)^{3/2}} \int_{k_{in}}^{k_{end}} d\vec{k}\, \zeta_{\vec{k}}\, e^{i\vec{k}\cdot\vec{x}}$$