

$$\mathbf{s}(\mathbf{x}, t) = \text{Re} \sum_{\mathbf{k}} (i\omega_{\mathbf{k}})^{-1} \mathbf{s}_{\mathbf{k}}(\mathbf{x}) \int_{-\infty}^t C_{\mathbf{k}}(t') \exp[i\omega_{\mathbf{k}}(t - t')] dt',$$