or in the rotated basis:

$$\tau_z L^{-1}\tilde{Q}L = \hat{Q} \qquad \tilde{Q} = \alpha^2 \int \frac{d\omega}{2\pi}\tilde{G}(\omega)\tilde{\mathcal{K}}(\omega)\tilde{G}(\omega)\ . \tag{B7}$$

This allow to obtain the Keldysh rotated elements of the charge correlator:

$$\tilde{Q}^{R/A} = \alpha^2 \int \frac{d\omega}{2\pi}\tilde{G}^{R/A}(\omega)\tilde{\mathcal{K}}^{R/A}(\omega)\tilde{G}^{R/A}(\omega)\ . \tag{B8}$$

$$\tilde{Q}^{K} = \alpha^2 \int \frac{d\omega}{2\pi}\left[\tilde{G}^{R}(\omega)\tilde{\mathcal{K}}^{R}(\omega)\tilde{G}^{K}(\omega) + \tilde{G}^{R}(\omega)\tilde{\mathcal{K}}^{K}(\omega)\tilde{G}^{A}(\omega) + \tilde{G}^{K}(\omega)\tilde{\mathcal{K}}^{A}(\omega)\tilde{G}^{A}(\omega)\right]\ . \tag{B9}$$

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