Chiral Symmetry (II)

In the vector sector chiral symmetry is encoded in Weinberg sum rules

spectral density:

$$\rho^{V,A}_{L,T} = -\frac{s}{2\pi} e^{q_0/T} \Pi^{V,A}_{L,T}$$

vacuum: $(\overset{\circ}{\rho}{}^{V,A}_{L} = \overset{\circ}{\rho}{}^{V,A}_{T})$

$$\int \frac{ds}{s} (\overset{\circ}{\rho}{}^{V}(s) - \overset{\circ}{\rho}{}^{A}(s)) = F_\pi^2 \quad \propto \langle 0|\bar{q}q|0\rangle$$
$$\int ds (\overset{\circ}{\rho}{}^{V}(s) - \overset{\circ}{\rho}{}^{A}(s)) = 0$$

medium: $(\vec{q} = 0)$

$$\int \frac{d\omega}{\omega} (\rho^V(\omega) - \rho^A(\omega)) = F_\pi^{*2} \quad \propto \langle \bar{q}q \rangle^*$$
$$\int d\omega \omega (\rho^V(\omega) - \rho^A(\omega)) = 0$$