Hi George,

For particle-hole quantities such as spin-spin or charge-charge correlations, you do need a different Kernel. In particular, you have:

$$\langle S(q,\tau)S(-q,0)\rangle = \frac{1}{\pi}\int \mathrm{d}\omega \frac{e^{-\tau\omega}}{1-e^{-\beta\omega}}\chi''(q,\omega) \tag{1}$$

with in the Lehmann representation:

$$\chi''(q,\omega) = \frac{\pi}{Z}\sum_{n,m} e^{-\beta E_n}|\langle n|S(q)|\rangle m|^2\delta(\omega + E_n - E_m)\left(1-e^{-\beta\omega}\right) \tag{2}$$

In principle that's it. In practice the setup of the Stochastic MaxEnt is a bit tricky, since as input I need the sum rule. Consider:

$$coth(\beta\omega/2)\chi''(q,\omega) \tag{3}$$

For this quantitiy, we have the sum rule since:

$$\int \mathrm{d}\omega coth(\beta\omega/2)\chi''(q,\omega) = 2\pi\langle S(q,\tau=0)S(-q,0)\rangle \tag{4}$$

which is just the first point in your data.

Hence,

$$\langle S(q,\tau)S(-q,0)\rangle = \int \mathrm{d}\omega \underbrace{\frac{1}{\pi}\frac{e^{-\tau\omega}}{1-e^{-\beta\omega}}tanh(\beta\omega/2)}_{K(\tau,\omega)}\underbrace{coth(\beta\omega/2)\chi''(q,\omega)}_{A(\omega)} \tag{5}$$

and one extracts with the MaxEnt $A(\omega)$ which one then transforms back to the quantitiy one whishes. The Kernel and back transformation in the program Max_SAC_ph.f90 does precisely this (This is in your directory FAKHER). If you use this wrapper the output in the files Aom_ps_1 will correspond to $S(q\omega) = \chi''(q,\omega)/\left(1-e^{-\beta\omega}\right)$.

Note that the program Max_SAC_ph.f90 uses the fact that $\langle S(q,\tau)S(-q,0)\rangle = \langle S(q,\beta-\tau)S(-q,0)\rangle$ so that it reads in only the data for $\tau = 0, \beta/2$. Also since $A(\omega)$ is a symmetric function the omega range you give should be positive.