I have another submission in the same category:
MAR16-2015-004583
I request that these be sequentially placed in the same session.

for the MAR16 Meeting of
The American Physical Society

High-temperature transport in the Hubbard Model[1] B. SRIRAM SHASTRY, Univ of California-Santa Cruz, EDWARD PEREPELITSKY, Collège de France, France, ANDREW GALATAS, Univ of California-Santa Cruz, EHSAN KHATAMI, San Jose State University, JERNEJ MRAVLJE, Jožef Stefan Institute,Slovenia, ANTOINE GEORGES, Collège de France, France — We examine the general behavior of the frequency and momentum dependent single-particle scattering rate and the transport coefficients, of many-body systems in the high-temperature limit. We find that the single-particle scattering rate always saturates in temperature, while the transport coefficients always decay like $\frac{1}{T}$, where T is the temperature. A consequence of this is a resistivity which is ubiquitously linear in T at high temperatures. For the Hubbard model, by using the high-temperature series, we are able to calculate the first few moments of the single particle scattering rate $\Sigma(\vec{k},\omega)$ and the conductivity $\sigma(\vec{k},\omega)$ in the high-temperature regime in d spatial dimensions. Further in the case of $d \to \infty$, we are able to calculate a large number of moments using symbolic computation. We make a direct comparison between these moments and those obtained through Dynamical Mean Field Theory (DMFT). Finally, we use the moments to reconstruct the ω-dependent optical conductivity $\sigma(\omega) = \lim_{k\to 0} \sigma(\vec{k},\omega)$ in the high-temperature regime.

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