

Abstract Submitted  
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**Many-body effects in frequency-dependent charge and thermal transport**<sup>1</sup> JESUS CRUZ, JAMES FREERICKS, Georgetown University — Recently, Shastry has proposed that thermoelectric properties (thermopower, Lorenz number, and figure of merit) can be determined accurately in strongly correlated materials by examining their high frequency behavior. He also has derived a sum rule similar to the f-sum rule in optical conductivity, for the frequency dependent thermal conductivity. We examine these ideas within the context of an exactly solvable model (the Falicov-Kimball model) with dynamical mean-field theory. We see that the low-frequency and high-frequency limits are not so close in this system. We also discuss the thermal conductivity sum rule. These results are important in trying to understand strong electron correlation effects in thermoelectrics.

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