**Description of renormalization effect of multiband systems and
its application within CMRA theory** JUN LIU, YONGXIN YAO, CHEN LIU,
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Many interesting physical phenomena, especially those observed in strongly corre-
lated systems, incur a multiband description. A relatively accurate description of
these systems is very important to clarify the origin of the observed physics. The
recently proposed correlated matrix renormalization approximation (CMRA) intro-
duces a new route to address this problem. As a variational approach, it makes use
of possible renormalizations on the density matrix to correctly absorb effects result-
ing from strong electron-electron interactions. It performs quite well on different H
systems. However, the generalization to multiband cases can be nontrivial. In this
talk, I will discuss about how renormalization effects can be incorporated into the
density matrix in the multiband case, and show the performance of the resulting
CMRA on different dimer systems.

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