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**The superconducting state of Holstein model using dynamical mean field theory** CHUNGWEI LIN, BINGNAN WANG, KOON TEO, Mitsubishi Elec Res Lab — To enhance the superconducting temperature within the conventional superconductors, we solve the Holstein model, where conduction electrons are coupled to some boson field, using dynamical mean field theory (DMFT) with the configuration interaction impurity solver. Thanks to the non-perturbative nature of DMFT, we determine the zero-temperature order parameter for a wide range of boson energies to find the optimal range for superconductivity. This is beyond the Migdal-Eliashberg theory where the boson energy is assumed to be small compared to the Fermi energy. The effect of Hubbard on-site repulsion will be also discussed.

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