

MAS21-2021-000021

Abstract for an Invited Paper  
for the MAS21 Meeting of  
the American Physical Society

**Structural predictions and lattice dynamics with embedded DMFT approach<sup>1</sup>**

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Recent solutions of the uniform electron gas problem by variational diagrammatic Monte Carlo method at metallic densities gave us new insights into the screening in solids and show that in metallic solids the short-range interaction point of view is most appropriate for fast convergence towards the exact solution. This gives us a new understanding of why Dynamical Mean Field Theory (DMFT) has been so successful in describing numerous correlated solids. In this talk, I will also explain in greater detail one such implementation, namely the DFT+embedded DMFT functional with its exact double-counting implementation. In the remainder of the talk, I will discuss the feedback effect of incoherent spectra on structural properties of solids and will show how the implementation of forces in this approach allows one to successfully predict structures and lattice dynamics of correlated solids, which will be demonstrated on iron superconductor FeSe.

<sup>1</sup>National Science Foundation, DMR 1709229