

Antoine Georges

(Collège de France and Flatiron Institute)

'Strong Electronic Correlations: The Dynamical Mean Field Theory Perspective'

Monday 13th February 2023, 3pm, Berry Lecture Theatre

From copper-oxide superconductors to twisted two-dimensional materials, strong electronic correlations have focused enormous attention over several decades.

The classic paradigm of solid-state physics in which electrons form a gas of wave-like quasiparticles must be seriously revised for strongly correlated materials. Instead, a description accounting for both atomic-like excitations in real-space and quasiparticle excitations in momentum space is required.

I will review how Dynamical Mean-Field Theory (DMFT) fulfills this goal and provides an original physical perspective on strongly correlated electron materials as well as an efficient computational framework to understand and predict their properties. Thanks to the efforts of a whole community over almost three decades, the theory has been developed to such a point that it can successfully be applied to real materials, taking into account their structure and chemical composition. I will also outline how the theory is being extended and generalized in many fruitful directions

The Colloquium will be followed by tea and coffee in the staff common room. For further details please contact phys-exec-office@bristol.ac.uk



School of
PHYSICS



**2023 Balazs Gyorffy
Physics Colloquium**