

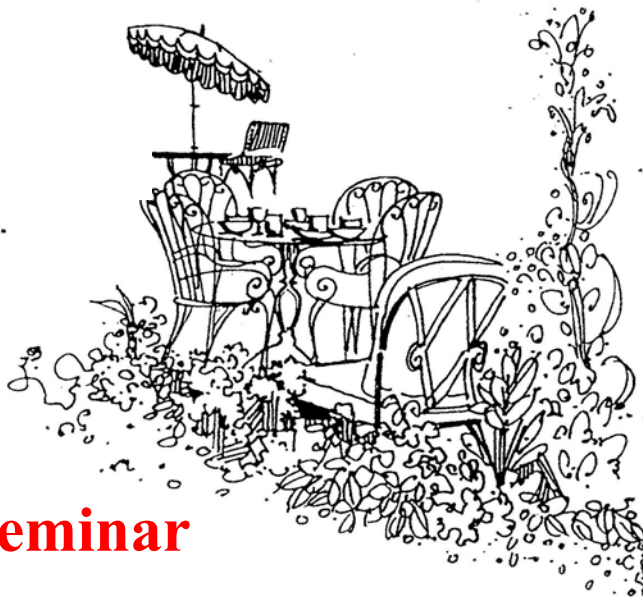
# *Chez Pierre*

Presents ...

**Monday, May 4, 2020**

**12:00pm Noon**

**Broadcast via Zoom**



## **Chez Pierre Seminar**

**Matteo Mitrano** – Harvard University

"Probing the finite-momentum spectrum of a light-induced superconductor"

Ultrafast optical excitation, especially when resonant to specific lattice modes, has recently emerged as a powerful means to control and induce new functionalities in quantum materials. One of the most ambitious goals is to selectively drive structural or electronic degrees of freedom to bring about nonequilibrium superconductivity at temperatures far above the equilibrium critical temperature  $T_c$ . While this phenomenon has been observed in a variety of systems ranging from copper oxides to organic molecular metals, the microscopic physics of these dynamics is still largely unexplored.

By focusing on the paradigmatic example of light-driven  $\text{La}_{2-x}\text{Ba}_x\text{CuO}_4$ , I will show how the newly developed technique of time-resolved resonant inelastic X-rays scattering (trRIXS) provides a new route to probe the finite-momentum excitation spectrum of these transient phases.

Furthermore, I will discuss how future trRIXS experiments will enable unprecedented access to ultrafast spin, charge and orbital dynamics in other classes of materials.