

# *Chez Pierre*

Presents ...

**Monday, September 16, 2019**

**12:00pm Noon**

**MIT Room 4-331**

## **Chez Pierre Seminar**

**Boris Spivak – University of Washington**

**“Giant microwave absorption in superconductors: a Debye mechanism”**

I will discuss a mechanism of microwave absorption in conventional superconductors which is similar to the Debye absorption mechanism in molecular gases. The contribution of this mechanism to AC conductivity is proportional to the inelastic quasiparticle relaxation time rather than the elastic one and therefore it can be much larger than the conventional one. The Debye contribution to the linear conductivity arises only in the presence of a DC supercurrent in the system and its magnitude depends strongly on the orientation of the microwave field relative to the supercurrent. The Debye contribution to the non-linear conductivity exists even in the absence of the supercurrent. It provides an anomalously low non-linear threshold. Microwave absorption measurements may provide direct information about the inelastic relaxation times in superconductors.

I will also discuss a closely related problem of resistance of superconductor-normal metal-superconductor junctions.

