Combi Seminar

Wednesday, 10.5.22 | 1:30 | Foege Auditorium
remote viewing option: https://depts.washington.edu/gsrestrc/remote.htm

Dr. Hong Qian

University of Washington

"Internal Energy, Fundamental Thermodynamic Relation, and Gibbs' Ensemble Theory as Laws of Statistical Counting"

Counting ad infinitum is the holographic observable to a statistical dynamics with finite states under independent repeated sampling. Entropy provides the infinitesimal probability for an observed frequency **n** w.r.t. a probability prior **p**. Following Callen's thermodynamic postulate and through Legendre-Fenchel transform, without help from mechanics, we show an internal energy **u** emerges; it provides a linear representation of real-valued observables with full or partial information. Gibbs' fundamental thermodynamic relation and theory of ensembles follow mathematically. **u** is to **n** what omega is to t in Fourier analysis.

https://amath.washington.edu/people/hong-qian

Questions? Contact Brian Giebel at bgiebel@uw.edu or visit the Combi website at http://www.gs.washington.edu/news/combi.htm