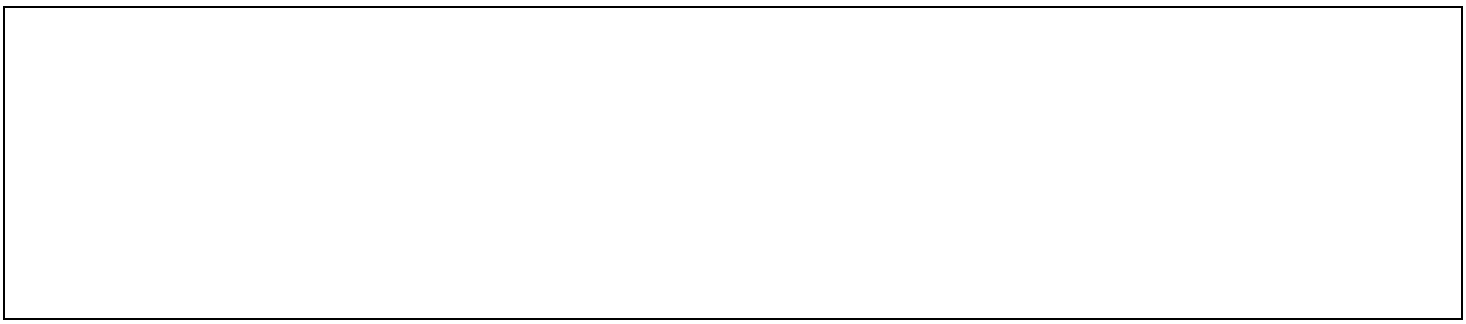

We consider an alternative approach to the foundations of statistical mechanics, in which subjective randomness, ensemble-averaging or time-averaging are not required. Instead, the complete physical system (i.e. the subsystem of interest together with a sufficiently large environment) is in a quantum pure state subject to a global constraint, and thermalisation results from entanglement between system and environment. In the "kinematic" setting of statistical mechanics, we formulate and prove a "General Canonical Principle", which states that the system will be thermalised for almost all pure states of the universe, and provide rigorous quantitative bounds using Levy's Lemma. We then go on to consider a full dynamical model of equilibration in a setting of closed system Hamiltonian dynamics. We find conditions under which initial states equilibrate, and under which the equi-librium state has the character of a canonical state. [Based largely on work with S Popescu

Saturday Science:
flyer attached below)
Where: Room 130 Nicholson Hall
When: Saturday March 25, 2017 10:00 AM

Nano Days 2017 at Highland Road Park Observatory (flyer attached below)
Where: Highland Road Park Observatory


March 25, from 2-6 p.m. The free fan
public and will feat
ssion from
mind of physicist Daniel Sheehy, a professor in the
a magnified daytime wax
At 4 p
inside the