

Abstract Submitted  
for the APR12 Meeting of  
The American Physical Society

**Inertial Systems Kinematically Defined in an Inflationary Universe** DAVID SAVICKAS, Western New England University — The cosmological background radiation is observed to be isotropic only within a coordinate system that is at rest relative to its local Hubble drift. This indicates that the Hubble motion describes the recessional motion of an inertial system that is at rest relative to its local Hubble drift. It is shown that when the Hubble parameter is kinematically defined directly in terms of the positions and velocities of mass particles in the universe, it then also defines inertial systems themselves in terms of the distribution and motion of mass particles. It is independent of the velocity of photons because photons always have a speed  $c$  relative to the inertial system in which they are located and therefore the definition of their velocity depends on the definition of the Hubble parameter itself and cannot be used to define  $H$ . The time derivative of the kinematically defined Hubble parameter is always positive and repulsive. It is shown to oppose the negative attractive acceleration of gravitation in a manner that leads to a universe that is balanced at the time of its origin so that  $H$  approaches zero as the universe expands to infinity.

David Savickas  
Western New England University

Date submitted: 22 Nov 2011

Electronic form version 1.4