

Abstract Submitted  
for the APR10 Meeting of  
The American Physical Society

**Inflationary Expansions Generated by a Physically Real Kinematic Acceleration** DAVID SAVICKAS, Western New England College — A repulsive cosmological acceleration is shown to exist that exhibits a behavior very similar to that found in both inflationary models at the time of origin of the universe, and also in the repulsive acceleration found in present-day cosmological observations. It is able to describe an inflationary model of a radiation universe in considerable numerical detail. It is based on a method that defines the Hubble parameter  $H$ , and consequently inertial systems themselves, directly in terms of the positions and velocities of mass particles in a universe. This makes it possible to describe a mass particle's motion relative to other particles in the universe, rather than relative to inertial systems. Because of this, the repulsive acceleration is a real kinematic effect existing in the present-day universe. This definition of  $H$  cannot include the use of photon positions or velocities because  $H$  determines the velocities of receding inertial systems of galaxies, and the velocity of a photon in a distant inertial system then depends on the definition of  $H$  itself. Therefore, at the time of its origin the magnitude of  $H$  in a radiation dominated universe would be solely determined by the behavior of the relatively few mass particles that it contained while allowing for a near balance with the gravitation of the Friedmann-Lemaître model.

David Savickas  
Western New England College

Date submitted: 01 Oct 2009

Electronic form version 1.4