



Graduate Physics Seminar
Monday, 19 March 2012 from 4 PM
University of Nova Gorica

Gašper Kukec Mezek

*Experimental Physics Program, School of Applied Sciences,
University of Nova Gorica*

Short introduction to the accelerating Universe

Abstract

The Universe has always been an interesting subject, testing the limits of our imagination. In the early 20th century, the foundations of the research came in the form of models, obtained from the general relativity theory by Albert Einstein and a bit later by Alexander Friedmann (who was the first to consider the Universe as non-stationary). However, the groundbreaking results followed in the 1920s, when Edwin Hubble, Knut Lundmark, George Lemaître and others proved, from observations of Cepheid stars, the Universe is in fact expanding. With the breaking of the atom and interest in quantum mechanics, progress in uncovering the secrets of the Universe slowed down, but after several recent observations and last years' Nobel prize for physics (on the accelerating Universe), our attention turned to the stars once more. Supernovae, to be exact. These binary star systems, where through transfer of matter from one to the other one becomes critical and explodes, emit a specific spectrum that can then be searched for shifts on their peaks, determining their redshift. As Hubble once written his law with only several ill-fitting observations, so do the results from supernovae observations indicate an accelerating universe and with ever increasing number of observations, our view on the Universe might become less and less imaginative.