

Searching for the Origin of the Elements Using a 12-Color Map of the Night Sky



Dr. Vinicius Placco

Research Assistant Professor

Department of Physics, University of Notre Dame

Wednesday

October 5

4:00 P.M.

Rm 118 NSH

Refreshments
in Rm 202 NSH
@ 3:30 pm

The chemical composition of our bodies, the Earth, the Sun, and the Universe is complex, and the end result of the formation and evolution of numerous stellar generations that contributed all of the elements heavier than helium. One way to understand the possible pathways that led to such complexity is to determine the chemical abundance patterns of ancient low-metallicity stars in the Halo of our Galaxy. However, it is impossible to observe each of the 100 billion stars in the Milky Way in sufficient detail to assess its chemical composition. Hence, astronomers have developed efficient ways to pre-select the most interesting stars for further high-resolution follow-up, based on the understanding that the colors of stars in specific regions of the optical spectrum are affected in predictable ways by changes in their chemical composition. I will discuss the importance of a new observing effort, called SPLUS (Southern Photometric Local Universe Survey), in selecting low-metallicity and carbon-enhanced stars, using a 12-color map of the night sky, which will fully exploit this approach, in a manner superior to all previous such efforts.