

Speaker: Chris Curtin

Topic: Exploring the Role of Globular Cluster Specific Frequency on the  
Luminosity Specific Nova Rate in Three Virgo Elliptical Galaxies

Time: 3:30 PM, Monday, November 17, 2014

Place: Room 256, Physics-Astronomy Building (P-256)

Abstract:

The results of a simple and direct observational test for a globular cluster specific frequency K-band luminosity specific nova rate are presented. Three galaxies, M87, M49 and M84, of comparable luminosity and distance, but with significantly different SN of 14/3.6/1.6 respectively, were observed under identical conditions in 4 epochs over 14 months in order to compare their relative nova rates. Under the null hypothesis that  $n_K$  is independent of SN, the numbers of novae per galaxy were expected to be  $\sim 22/32/15$ , respectively. Under the hypothesis that nova rates are dependent on SN, the relative numbers could be as different as  $\sim 86/32/7$ , respectively, in the extreme case where all novae are formed in clusters. In our final analysis we found 27/37/19 novae per galaxy respectively, corresponding to global annual nova rates of 154/189/95 and luminosity specific nova rates of 3.83/3.41/2.98. The results of our study establish that the fraction of nova progenitor systems formed in globular clusters is not large enough to significantly affect a galaxy's luminosity specific nova rate.