

## STAR FORMATION IN NUCLEI OF EARLY-TYPE GALAXIES

B. Rocca-Volmerange<sup>1,2</sup>, B. Guiderdoni<sup>1</sup>

<sup>1</sup>Institut d'Astrophysique, Paris, France

<sup>2</sup>Laboratoire René Bernas, Université Paris XI, Orsay, France

A far-UV population synthesis is performed with the IUE Spectral Atlas on absolute spectrophotometry for nuclei of early-type galaxies. Two types of stellar populations may be distinguished in gas-poor galaxies: a) the bulk of evolved stars mostly contributing in the 2000 Å - 3000 Å wavelength range as well as in the visible. The Long Wavelength Range IUE spectra appear to be excellent indicators of the turn off age in galaxy nuclei; b) a possible young massive star population which could be the origin of the far UV excess in most cases and which is essentially contributing in the 1200 Å - 2000 Å wavelength range. Spectral features of massive stars may be identified.

The sensitivity of such results to the gas content is also analyzed.

## U-G AND G-R COLORS OF THE CLUMPY IRREGULAR GALAXIES MARKARIAN 297 AND 325

S. Tamura

Astronomical Institute, Tohoku University, Sendai 980, Japan

J. Heidmann

Observatoire de Paris, 92125 Meudon, France

ABSTRACT. U-G and G-R colors of clumps in Mrk 297 and Mrk 325 are presented. In addition, colors of other interesting objects and radiation sources were calculated for the Kiso UGR system. These objects are used to interpret the intrinsic characteristics of our sample. The observed colors of the clumps in both Mrk 297 and Mrk 325 are bluer than Im galaxies as well as main sequence stars and show scatter over the extent of the U-G vs. G-R diagram.

## 1. OBSERVATIONS

We present observational results of U-G, G-R colors of several clumps in Mrk 297 and Mrk 325. All plates for this work were obtained during a program to search for UV excess galaxies with the 105-cm Schmidt tele-

scope at Kiso Observatory, a branch of the Tokyo Astronomical Observatory. Tri-color exposures of U, G, and R on one plate combined with filters have been made by setting exposures of 40, 100, and 20 minutes for each band. By means of these exposures almost equal size or density of the three images are obtained for unreddened AOV stars.

In Figures 1a and 1b, we plot isophotes of tri-colors of Mrk 297 and Mrk 325 in an arbitrary scale. We can recognize very important and valuable information in these contours, because several clumps are clearly distinguishable and show their color indices. Especially, in taking note of such clumps, we have marked them by letters in the U images of Figures 1a and 1b.

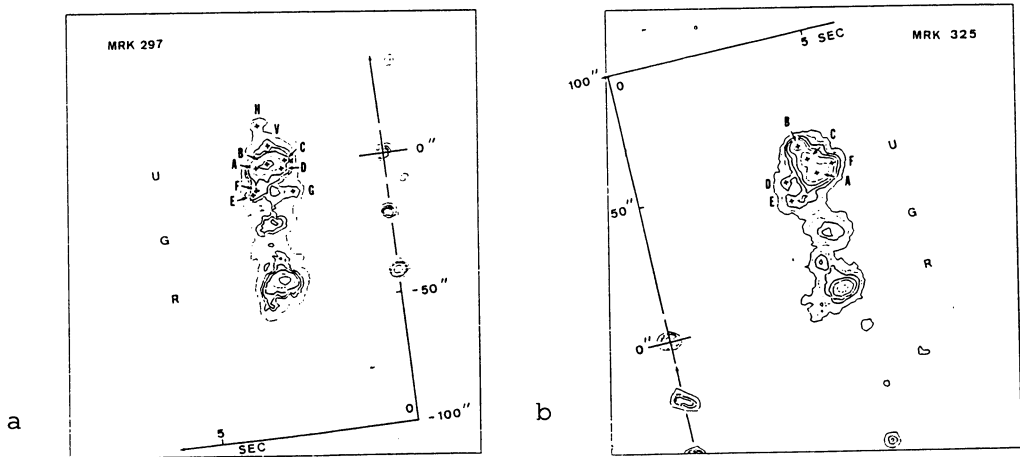


Fig. 1. Isophotic contours of Mrk 297 (a) and Mrk 325 (b) in U, G, R images. Intensity scales are arbitrary. In the U images, clumps are indicated by crosses and letters.

## 2. RESULTS

The observational results of U-G and G-R colors in Mrk 297 and Mrk 325 are given in Figure 2. In addition to these observational results, the U-G and G-R colors of: blackbody, non-thermal sources, main sequence stars, and various morphological types of galaxies, are also plotted.

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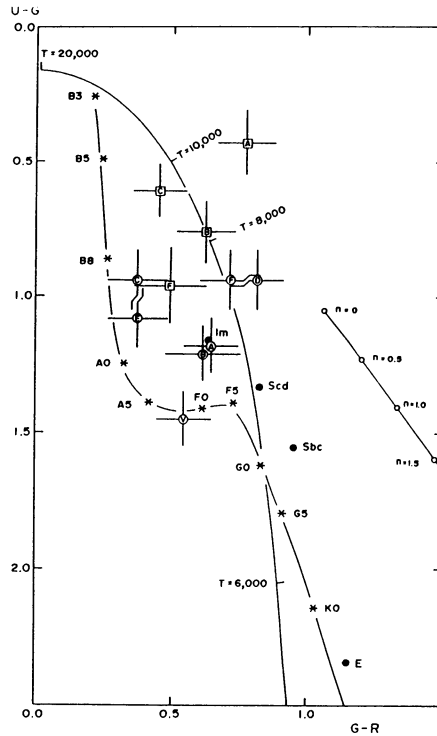


Fig. 2. Observational U-G and G-R colors for Mrk 297 (A,B,C,D,E,F,V with circles) and Mrk 325 (A,B,C,F with boxes).

#### HIGH-DISPERSION SPECTROSCOPY OF THE CLUMPY IRREGULAR GALAXIES MARKARIAN 297 AND 325

Y. Taniguchi, S. Tamura  
Astronomical Institute, Tohoku University, Sendai 980, Japan

**ABSTRACT.** High-dispersion spectroscopic observations with good spectral resolution have been made of the four clumps in the two clumpy irregular galaxies Markarian 297 and 325. Their velocity dispersions in the H $\alpha$  emission line (32–41 km s $^{-1}$ ) are larger by about 2 or more than those of the so-called giant HII regions in nearby spiral or irregular galaxies.