CORRELATION BETWEEN RED AND BLUE MAGNITUDE OF STARS IN OPEN CLUSTER M48

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This Final Year Project Report entitled "**Correlation Between Red and Blue Magnitude of Stars in Open Cluster M48**" was submitted by Siti Rohana Binti Mohd Saad, in partial fulfilment of the requirements for the Degree of Bachelor of Science (Hons) Physics, in the Faculty of Applied Sciences, and was approved by

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ABSTRACT

CORRELATION BETWEEN RED AND BLUE MAGNITUDE OF STARS IN OPEN CLUSTER M48

An open star cluster is physically related groups of stars held together by mutual gravitational attraction. The stars populate a limited region of space, typically much smaller than their distance from us, so that the stars are all roughly at the same distance. Open star clusters are also occasionally referred to as galactic cluster because they are almost exclusively found in the plane of Milky Way. This research was done with the objective of to use the CCD camera to take the image of the open cluster M48, to use Astronomical Image Processing (AIP) software to calculate the magnitude of the stars, and to measure correlation between red and blue magnitude of the stars in the open cluster, M48. The 14" Celestron telescope was used to take the data. Magnitude is the degree of brightness of a star. Magnitude that can be measured is apparent magnitude, absolute magnitude, and instrumental magnitude. In this research, the instrumental magnitude was measured. The instrument magnitude of the stars was measured using aperture photometry technique. The aperture photometry is a method of CCD photometry for determining the star brightness with the use of three digital annulus to measure the brightness of star. The instrumental magnitude of blue filter is smaller than red filter. From the value of magnitude of the stars, the image of stars using blue filter is brighter than the image using red filter except for the 17^{th} star which has the magnitude of blue filter higher than magnitude of red filter. Signal to noise ratio was calculated to support the result of magnitude of the stars. Signal to noise ratio for blue filter is higher than red filter.