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ABSTRACT

Fraunhofer diffraction is one of the phenomena of light in the study of physics. In this study an analysis of the Fraunhofer diffraction pattern by using the principles of artificial life. The principle of artificial life is a concept of the method of analyzing the process was done by using a basic formula without prior reduction. Artificial Life method is used for describe Huygens principle, analyse diffraction intensity, and apply the related wavelength variation to fringe. Used Microsoft Excel 2007 and Borland Delphi 7 to analyze the Fraunhofer diffraction pattern with a variation of the wavelength. Results of analysis using Microsoft Excel 2007 is used as a benchmark to test the truth values of the simulation program using Borland Delphi. Further analysis was performed with a simulation program with a variation of the diffraction pattern wavelength 405 nm, 532 nm and 655 nm and the resulting diffraction pattern corresponding to the existing literature and formulation. Huygens principle was showed in the space distribution for layer, distribution of diffraction intensity was performed graphics that almost same with the distribution intensity from general diffraction formula, and wavelength variation to fringe influenced centre maximum size for intensity distribution graphics.

Keywords : Artificial Life, Fraunhofer Diffraction, Diffraction Pattern