**Clustering the Interstellar Medium**

**Interactive Exhibit Submission**

December 16th, 2015

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The purpose of this research is to develop a program capable of analyzing star emission data using a variety of clustering methods. Clustering involves a computer grouping data points based on similar characteristics. Two clustering methods have been applied to an M83 Galaxy data set developed by the Wide Field Camera 3 of the Hubble Space Telescope. The program was designed using the Python language to implement Mean-Shift, and K-Means clustering methods to identify objects that emit similar combinations of light over multiple wavelength magnitudes. After the clustering was performed, each object was catalogued with an identification number, and the strength of the clustering was tested using a Silhouette Score. The identification numbers were then compared with various studies to ensure the accuracy of the clustering experiments. The program was designed to allow users to run multiple experiments over any data file. This program will allow astronomers to identify objects that emit similar combinations of light, leading to a stronger understanding of how star clusters form and evolve.