

Searching for Binary Stars in Planetary Nebulae Using the ISIS Image Subtraction Software

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We are exploring the theory that binary central stars of planetary nebulae are a contributing factor in the formation of planetary nebulae. We search for this photometric variability in central stars of planetary nebulae because consistent periodic variability is indicative of a close binary system. The variability of our targets is assessed with the image subtraction software, ISIS. We find that the central stars of the planetary nebulae (CSPNe) Hen 2-84 and NGC 6326 show variability. A preliminary light curve for Hen 2-84 shows periodic behavior, suggesting a binary system. Of the remaining targets observed, with sufficient data, seven do not appear to have substantial variability detected through ISIS and two targets have undeterminable variability.

Information about the Author:

Samantha Schwartz is a senior with majors in physics and mathematics. Samantha is involved in the Society of Physics Students, Sigma Alpha Iota, and the VU Flute Choir on campus. After graduation in May, she intends to attend a graduate program in physics education.

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