

Solicitation Title: Characterizing the V471 Tau System
Solicitation Deadline: February 8th, 2022
Solicitation Sponsor: Drs. Scott Engle and Edward Guinan
Solicitation Funding: External (grants)

Solicitation Summary:

We are seeking a Villanova undergraduate student or the summer research opportunity to analyze X-ray and optical observations of the eclipsing binary system V471 Tau. The eclipsing binary itself is composed of a white dwarf and a K-dwarf (main sequence K-type star), and there is believed to exist a third component as well – a brown dwarf. Analyses will include using optical photometry to determine the timings of the eclipses, and X-ray data to characterize the magnetic activity of the K-dwarf and search for possible rotation-induced variations from the white dwarf.

Solicitation Requirements:

The research position is open to all Villanova undergraduates that are majoring in astronomy or a closely related field. Applicants need to provide:

- a current CV that highlights commitment to excellence in the applicant's current field of study;
- a 3-page proposal that discusses the scientific background and proposed work timeline;
- a 1-page narrative on expected outcomes and procedures; and
- a 1-page personal statement that conveys the suitability and interest of the applicant.

To apply for this position, interested students need to submit their applications by the deadline in the form of a single pdf document. Only electronic submissions are accepted; email your applications to scott.engle@villanova.edu. Any applications received after the deadline will be returned without review.

Solicitation Documents:

To prepare a strong proposal, the following sources might be useful

- A recent [research paper](#) describing some of the variations found within the system
- An older [research paper](#), but one that gives a good background on the target

In addition to these, applicants are encouraged to use their own sources of information.

Solicitation Outcome Announcement:

The review of solicitation material will begin on Feb 8, 2022 and a short-list will be assembled by Feb 15, 2022. The highest-ranking candidate will be informed and offered a position. In the event that the highest-ranking candidate accepts the position, the solicitation will be closed. Otherwise, the position will be offered to the next highest-ranking applicant until the position is filled.