



COLLOQUIUM



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Identifying Cataclysmic Variable Stars in Automated Synoptic Surveys

Abstract

After many years of rapid development, astronomical instrumentation for observing this vast Universe may finally be reaching adequacy—although I wouldn't bet money on that. Automated telescopes are nevertheless producing torrents of data, coping with which is a challenge in itself.

The Universe is very large, and very rich. Ever since Galileo's telescopes, whenever astronomers get a new way to observe, they discover lots that is unexpected. Synoptic surveys are observations made repeatedly over time over large areas of the sky. They are proving particularly productive scientifically. One reason is that sustained, repeated observations of billions of objects used to be rare. Telescope time on major telescopes is usually parceled out in a few nights per astronomer per semester: any physics that takes more than a week to take place, or is present only in rare objects, can be missed.

This talk will describe an observational method developed by Fresno State physics alumnus Kurt L. Shults Jr. for his M.S. thesis in 2020. It uses synoptic survey data, made over time, to use the erratic flickering present in the accretion disks of cataclysmic variable stars to distinguish them from related objects that do not have accretion disks. The method is still not 100% effective, but the few percent of objects that still do get misclassified as cataclysmic variables invariably turn out to be interesting in their own right.

<https://fresnostate.zoom.us/j/86876409409?pwd=VEhTMk05ZEJmbUtQcThMNDVnQURZZz09>

3:00 p.m. – 4:00 pm Friday, March 12th Virtual