General Seminar

3:40PM / Thursday, 19 May 2005 / Room 109, Nicholson Hall
Hosts: Drs. Bradley Schaefer & Robert Hynes
[Refreshments served at 3:15PM in Room 229, Nicholson Hall]

"Last Rites of Binary Star Evolution"

Joe Patterson, PhD
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There has always been a paradox in our understanding of the evolution of cataclysmic variables (CVs). Angular momentum loss should grind the binaries down to $P_{\text{orb}} \sim 1.3$ hr in 1-3 billion years, and then drive them apart again on a longer timescale. Most CVs should therefore have undergone "period bounce" a long time ago, and be evolving today towards longer period with light secondaries ($\ll 0.1$ Mo). This is apparently contradicted by observation. Where are these old CVs, the expected survivors of period-bounce, hiding? We have found a way to identify them, primarily by measuring the rates of accretion-disk precession - which yield the secondary-star masses. It turns out that the "observational" result was wrong: these "are" indeed the majority species of CVs, but have been missed because of their faintness and reluctance to erupt. These measures of secondary-star mass also yield a precise mass-radius relation for CVs.

Publications


Announcements and Reminders

There will be a Steering Committee Meeting at 3:40PM, Tuesday, May 17th, in Room 201.