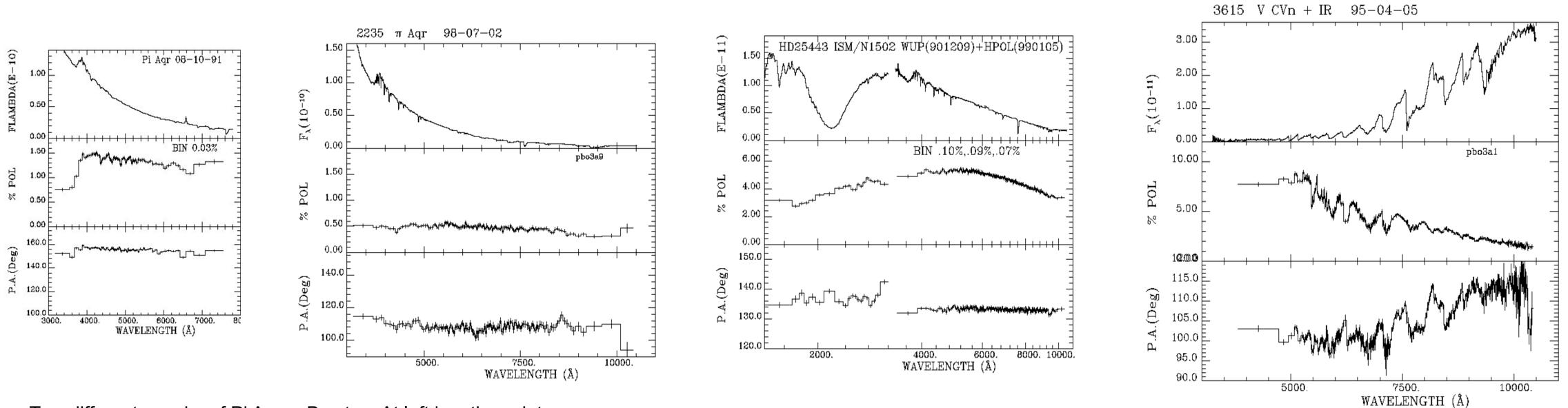


HPOL: World's Largest Database of Optical Spectropolarimetry

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Stars with a V magnitude range of 0.1 to 12.0 were observed at the Pine Bluff Observatory near Madison, Wisconsin, USA (latitude 43:40 degrees) from 1989 to 2004, using the HPOL spectropolarimeter. HPOL produced flux and polarization spectra from 3200 -7750 Å at a resolution of 25 Å prior to 1995; and 3200-10500Å at a resolution of 10 Å from 1995-2004. A total of 4000 observations were taken of 555 objects over 1746 nights. The database of processed data is available at <http://www.sal.wisc.edu/HPOL/pbotgt.html>. HPOL data taken from 1989 through 1994 can be obtained from the Multimission Archive at STScI (MAST; <http://archive.stsci.edu/hpol/>). 1995-1998 data have been delivered to the MAST and 1998-2004 data will be delivered and archived in the future. The 1998-2004 data are available from the UW upon request (contact meade@astro.wisc.edu). We encourage all interested researchers to make use of this publicly available high-quality data set. This poster shows some example data and science results.



Two different epochs of Pi Aqr, a Be star. At left is reticon data (pre-1995); at right shows newer CCD data with higher resolution and wider wavelength coverage. These plots also show the variability of this object.

HPOL served in a critical role by characterizing the environmental conditions along many interstellar sightlines through the derivation of lambda-max and the Serkowski K parameter. This information, combined with the UV observations from WUPPE, allowed for insights into the relative abundance of aligned small grains (Martin, Clayton & Wolff 1999). WUPPE obtained medium-resolution spectropolarimetry from 1400-3200 Å on 121 objects, from the Space Shuttle in 1990 and 1995. WUPPE data are available at MAST (<http://archive.stsci.edu/wuppe>).

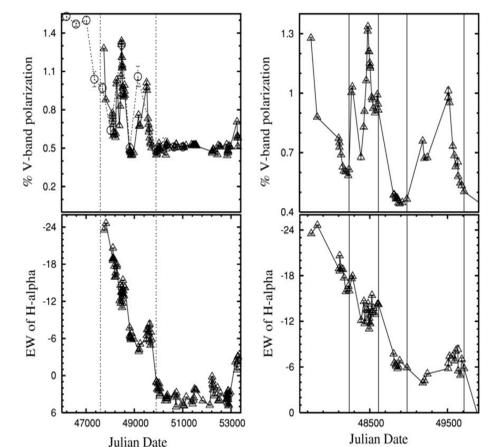
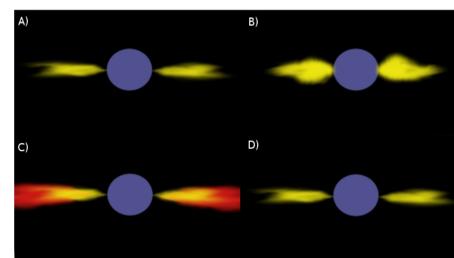
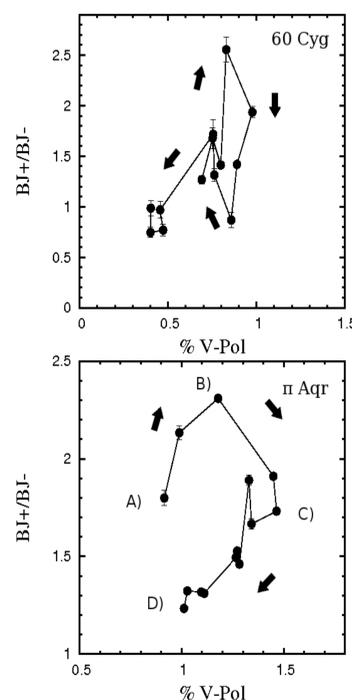
V CVn, a luminous red variable, possesses two main periods of variability, 192 days and 187 days. The corresponding frequencies beat against each other and provide epochs of alternate high and low polarizations. This and light curve data suggest that V CVn is a non-spherically symmetric, pulsating star with a stable symmetry axis.

Object Summary Table

Type of Object	#
Interstellar Medium	222
Be stars	72
Luminous Red Variables	37
Interacting Binaries	34
Herbig Ae/Be stars	21
Hot Supergiants	15
Solar System Objects	13
Unpolarized Standards	12
Polarization Standards	11
Symbiotic stars	9
Wolf Rayet stars	8
Novae	8
RV Tauri	7
Oe/Be	6
Pre-Planetary Nebulae	5
Pre-Main Sequence	5
Active Chromospheres	4
RS CVn	4
Rapid Rotators	4
Luminous Blue Variables	3
T Tauri objects	3
HyperGiant	3
Cataclysmic Variables	2
W Uma	2
R CrB	1
X-Ray Transient	1
Other	43
Total	555

A list of objects for your perusal (you can search this on the HPOL website):

A publication list for your perusal (available on the HPOL website):



Wisniewski et al (2010) analyzed 15 years of spectropolarimetric observations of the classical Be stars pi Aqr and 60 Cyg to determine how large-scale disk-loss events evolve in these systems. Draper et al (2011) analyzed changes in the polarization across the Balmer jump during outburst events seen in the top right figure, and found evidence of coherent loop-structures in Balmer jump-V-band polarization (BJV) diagrams (left). Clockwise loops in BJV diagrams were attributed to the mass decrement from the central star being turned "on/off", as depicted graphically above; hence, this diagnostic enables one to sample the time-dependent stellar decretion rate.