POLARIZATION MEASUREMENTS OF SOME T TAURI STARS

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T Tauri stars show linear polarization typically between 1-3%. A two band linear polarization survey of some T Tauri star was reported earlier by Bastien (1982). Most of the stars show pronounced time variability in polarization and position angle (Bastien, 1980; 1982). Wavelength dependence of polarization is important in determining the specific mechanism(s) producing polarization. For a systematic study of polarization in T Tauri stars, we have taken up an observing programme to measure linear polarization of some stars in Taurus-Auriga region. Polarization measurements of 9 T Tauri stars are reported here. Observations were made on January 8-11, 1984 with MINIPOL (Frecker and Serkowski, 1976) on 61" telescope of University of Arizona.

Figure 1 shows the wavelength dependence of polarization and position angle. A few important results are discussed here. HL Tau shows larger degree of polarization increasing towards I band, P_I being $\sim$ 15%. DG Tau also shows high degree of polarization which is found to be variable in a time scale of a day. Polarization vector in DG Tau is perpendicular to the "jet" detected by Mundt and Fried (1984). Position angle changes significantly with wavelength in all stars discussed here except the RY Tau. RY Tau shows large λ - independent polarization (P $\sim$ 3.4%); position angle is also λ - independent. Stars DR Tau, SU Aur and RW Aur show small degree of polarization ($\sim$ 0.4%) in all bands but the position angle show strong λ -dependence, especially in RW Aur θ change by 65 degrees from U to I band. Percent polarization slowly increases from U to I band in XZ Tau (1.2 to 3.0%) and DG Tau (2.7 to 6%) whereas θ is almost λ - independent. Stars VY Tau and BP Tau show λ - dependence for both - P and θ ; BP Tau shows very peculiar behaviour of λ - dependence of position angle.

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References

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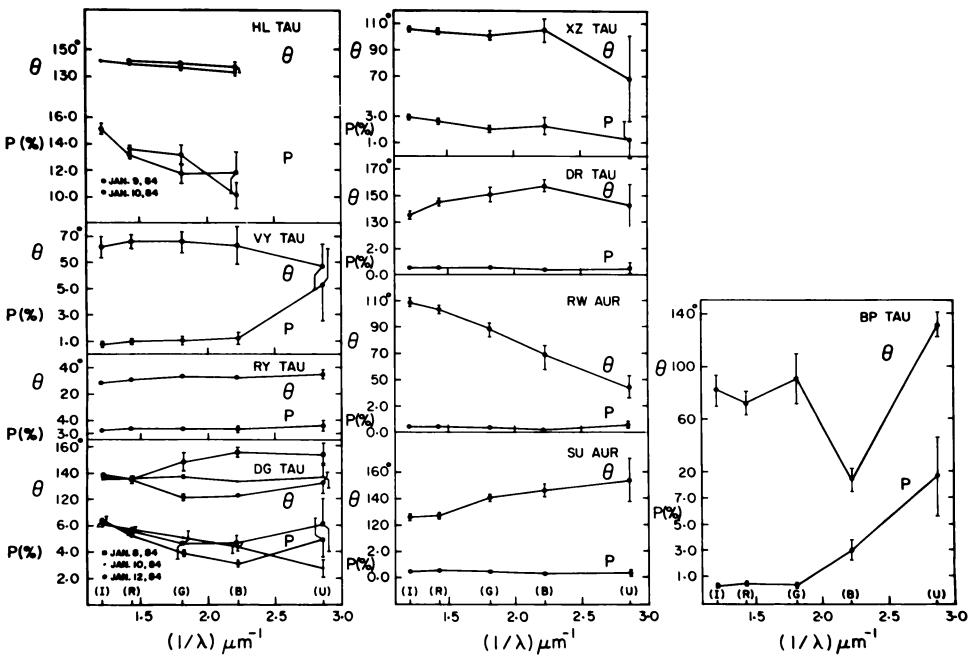

Figure 1. Wavelength dependence of percent polarization (P) and Position angle (θ) for 9 T Tauri stars. Error bars ($\pm$ 1 sigma) are marked.

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