

AN INVESTIGATION OF T TAURI VARIABILITY

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Three mechanisms for the production of the variability in T Tauri stars are investigated with the use of color-color diagrams, color-magnitude diagrams and energy distribution plots. These mechanisms are: 1) changes in the effective spectral type; 2) changes in the optical thickness of the dust shell; and, 3) changes in the optical thickness of the chromosphere. All the stars studied here are located in the Taurus-Auriga dark cloud complex. A relationship between a strong chromosphere and chromospheric variability was found as well as a similar relationship between a thick dust shell and dust shell variability. There is some evidence that the stellar photosphere becomes more stable with increasing age during the T Tauri phase.

A LARGE AMPLITUDE PHOTOMETRIC PERIODICITY ON A T TAURI STAR

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A T Tauri star, SY Chamaeleontis, was observed to undergo strictly periodic brightness oscillations with a 1^m6 B amplitude and a period of 6^d129 . This paper presents B, V, and R light curves for the years 1970-1972, during which these oscillations were seen. For most of its history since 1901, SY Cha showed small amplitude irregular variability with $m_B \sim 14.2$. In 1970, SY Cha exhibited a roughly sinusoidal shape light curve with a range of $13^m4 < m_B < 14^m2$. During 1971 and 1972, the range had increased to $12^m76 < m_B < 14^m34$, whereas the range of m_V and m_R remained constant. Sometime between 1973 and 1978, the star resumed its old behavior pattern. The most likely hypothesis is that a localized bright spot formed on or near the surface of SY Cha, and that stellar rotation caused the spot to appear and disappear as viewed from Earth.