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## Astronomical & Astrophysical Transactions

### The Journal of the Eurasian Astronomical Society

Publication details, including instructions for authors and subscription information:  
<http://www.informaworld.com/smpp/title~content=t713453505>

#### Photosphere parameters of the T Tauri type star SU Aur

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Online Publication Date: 01 July 1996

To cite this Article: Bayazitov, U. Sh. and Saghidullin, I. Kh. (1996) 'Photosphere parameters of the T Tauri type star SU Aur', *Astronomical & Astrophysical Transactions*, 10:4, 305 - 306

To link to this article: DOI: 10.1080/10556799608205444

URL: <http://dx.doi.org/10.1080/10556799608205444>

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## PHOTOSPHERE PARAMETERS OF THE T TAURI TYPE STAR SU AUR

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*(Received October 25, 1994)*

We determined the parameters  $T_{\text{eff}}$ ,  $\log g$ , and  $v_{\text{rot}}$  for the T Tauri star SU Aur. The best agreement between calculated and observed H and K CaII profiles was obtained for  $T_{\text{eff}} = 6250$  K,  $\log g = 4$ ,  $v_{\text{rot}} \sin i = 67$  km/sec.

KEY WORDS T Tauri stars, Non-LTE calculations

Investigations of extremely young T Tauri stars are of great importance for studies of stellar evolution. Precise determination of stellar parameters for T Tauri stars is very difficult because these stars have low brightness and variable stellar characteristics. This applies also to SU Aur.

According to Herbig and Bell (1988), the equivalent width of  $H_{\alpha}$  emission line for SU Aur is  $4\text{\AA}$ ,  $V = 8^{\text{m}}93$ , rotation velocity  $v \sin i = 67$  km/sec, and the star's spectral type is G2.

For the determination of the effective temperature, gravity, and rotation velocity we used three spectrograms of SU Aur. These spectrograms were obtained using the 2m telescope of Schemakha Astrophysical Observatory (Bayazitov, 1989).

The dispersion of the spectrograms is  $75\text{\AA}/\text{mm}$ . We combined the three profiles of the H and K CaII region from these spectrograms in the one profile (Figure 1).

Theoretical non-LTE profiles of H and K CaII lines were calculated using the MULTI program (Carlsson, 1986).

The photosphere models were taken from Kurucz (1979) and Carlsson (1986).

In our calculations, we varied effective temperature, gravity, and rotation velocity. The calculated CaII line profiles were more sensitive to  $T_{\text{eff}}$  changes and less sensitive – to gravity modifications.

The best agreement between calculated and observed H and K CaII profiles has been obtained for the following photosphere parameters of SU Aur:  $T_{\text{eff}} = 6250$  K,  $\log g = 4$ ,  $v \sin i = 67$  km/s (Figure 1).

Our values of gravity and rotation velocity are in agreement with those from Herbig and Bell (1988). But our effective temperature is higher by 500 K and contradicts the G2 spectral type.

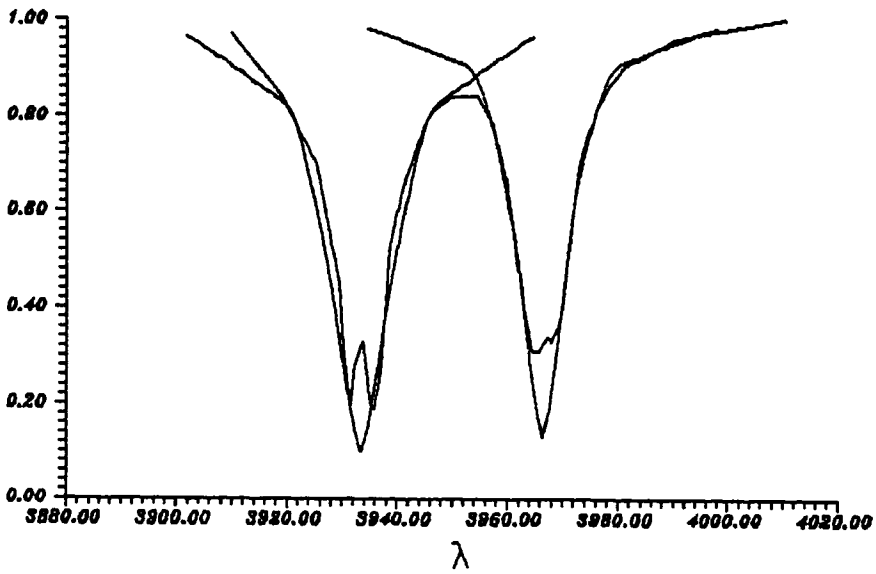


Figure 1 Observed and calculated H and K CaII profiles of SU Aur.

We conclude that our determination of stellar parameters of SU Aur using CaII profiles confirms earlier obtained values of gravity and rotation velocity but gives a higher effective temperature. This  $T_{\text{eff}}$  corresponds to F5 spectral type for SU Aur.

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