Recent observations of ζ Tau

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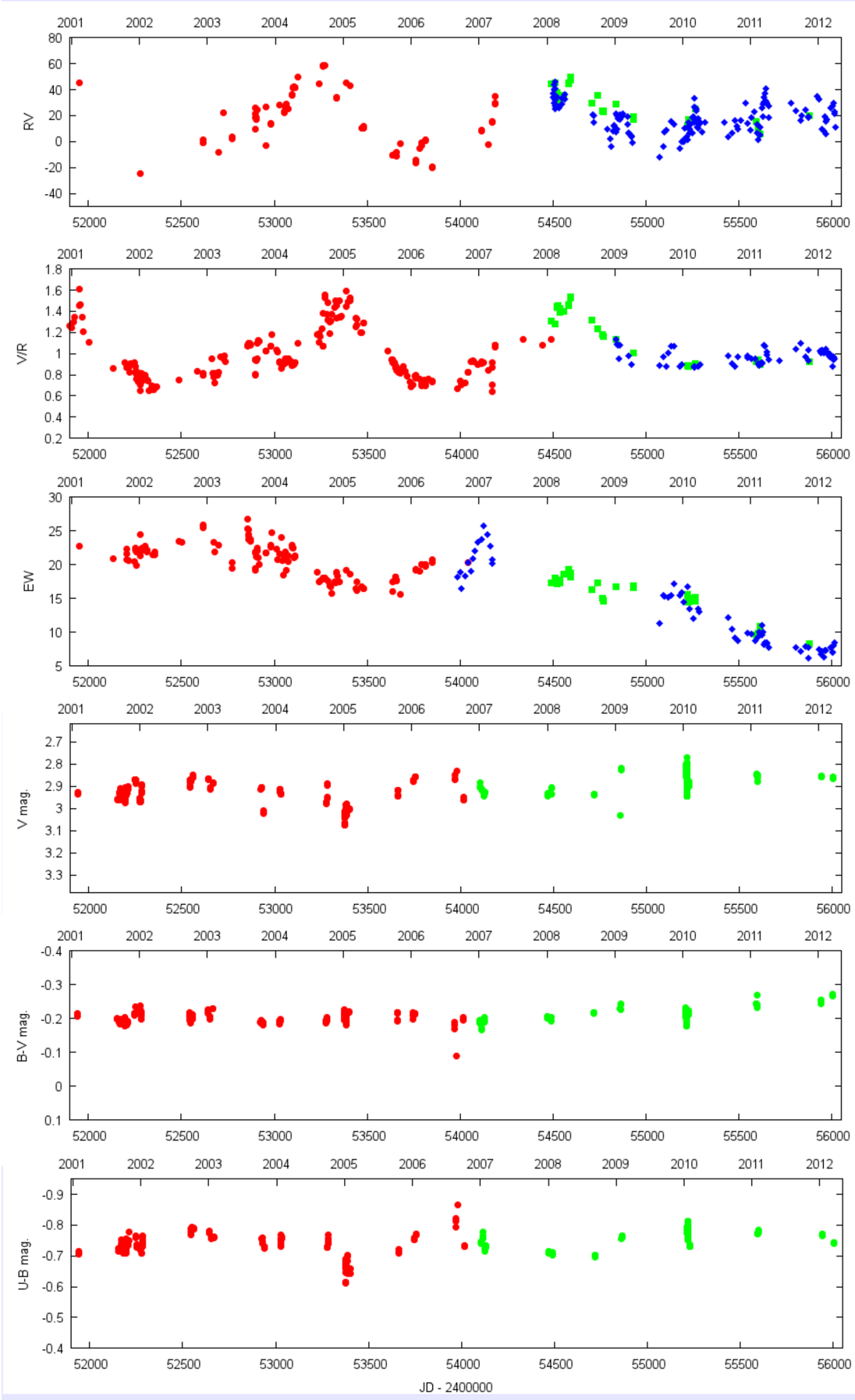
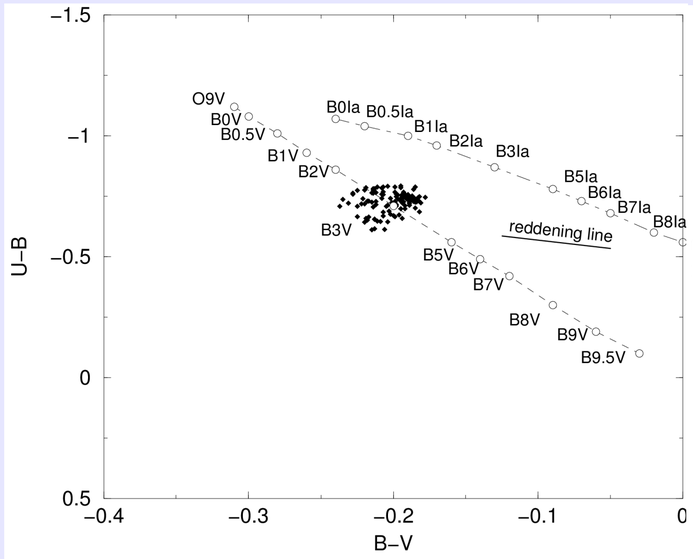
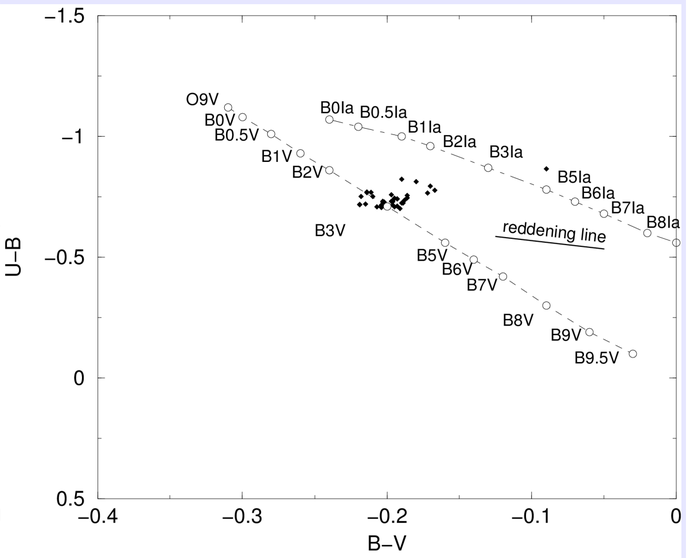
We report recent decrease of Hα emission strength in bright Be shell star ζ Tau. The decrease of emission is caused presumably by depletion of the material in the circumstellar disc which resulted in disappearance of pronounced long term radial velocity and *V/R* variations. The period analysis of the equivalent width data gives the period of 132 days for Hα equivalent width and about 70 days for He I 6678 Å equivalent width.

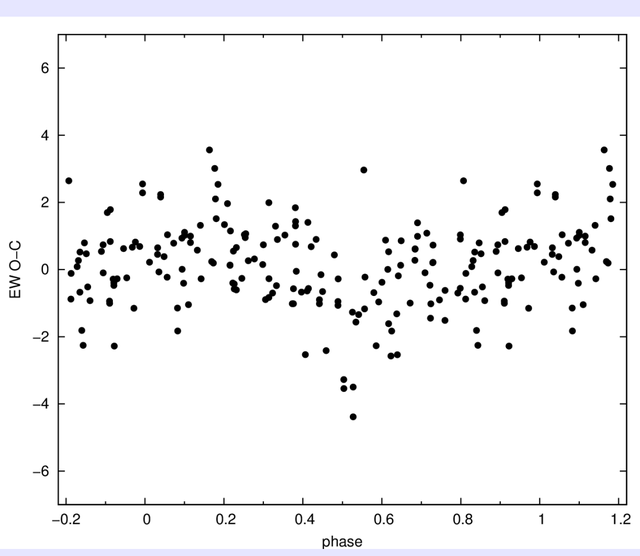


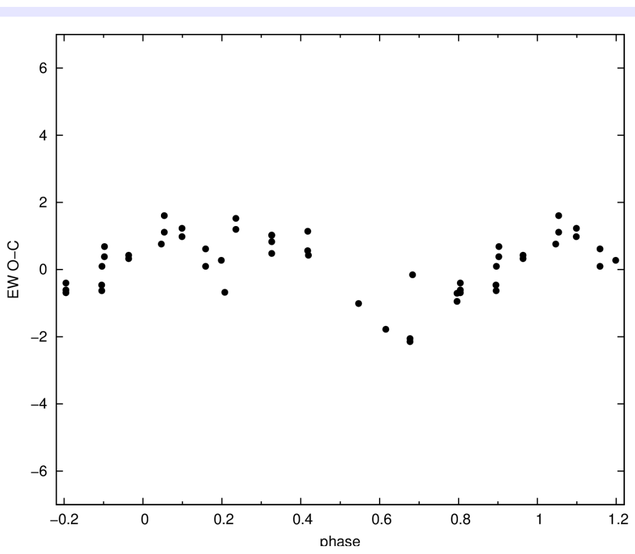
Long term RV, *V/R*, emission, brightness and colour changes during this century.
Different symbols denote: red circles - data from Ruždjak et al. (2009), green squares - Ondrejov spectra, green circles - Hvar photometry and blue diamonds - Pollmann spectra.



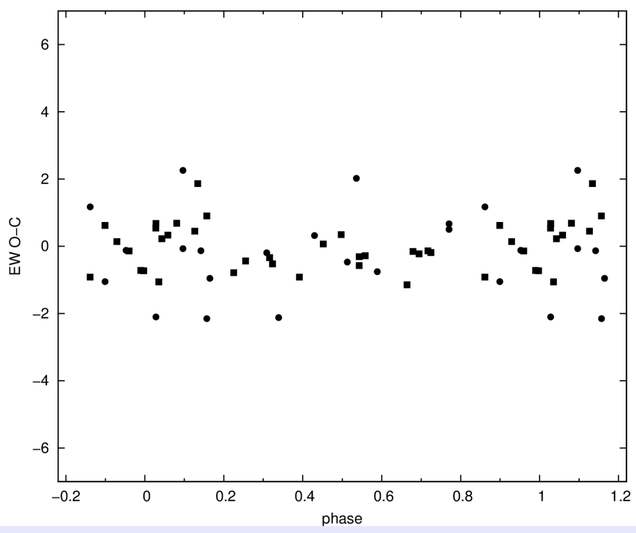


(*U-B*) – (*B-V*) colour diagrams.
The colour-colour diagrams are constructed for the time intervals: 2451943—2453402 upper left, 2453660—2454491 upper right and 2454719—2456003 right.





Phase plots for individual Hα equivalent width observations.
Electronic spectra from Ruždjak et al. (2009), (JD 249049--2453850), upper left, Ondrejov spectra (JD 2454490--2455878) upper right and Pollmann spectra (JD 2455091--2456013) right.
On the last plot data recorded before JD 2455495 are represented by circles and data after JD 2455546 are represented by squares. The ephemeris T = HJD~2447025.6 + 132.1 x E was used. The long term trend was removed as sum of five sine waves.



During last three observing seasons the equivalent width of the Hα emission of Be shell star ζ Tau decreased significantly what lead to disappearance of pronounced long term radial velocity and *V/R* variations. The decrease of emission was accompanied by mild brightness increase and bluing of *U-B* and *B-V* colours. This is consistent with the depletion of the circumstelar disc. If the depletion of the disc will continue, ζ Tau might lose its emission completely.
The period analysis of Hα and He I 6678 lines gives 132 and 70 days respectively. These periods are possibly caused by eclipse of the emitting part of the disc by some material near the Lagrange point L4 (132 day period) and nodding as a consequence of tidally modulated precession of the disc tilt (70 day period).

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