The magnetic field of the cluster Ap star HD 119419 from four Stokes parameter observations

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Abstract

The star HD119419 (HR 5158) is part of the Scorpius-Centaurus OB association with an age of 14 Myr. The study by Bagnulo & Landolfi (1999) of the moments of Stokes I and V observations found evidence that HD 119419 is likely to have a non-dipolar field structure, and that it significantly deviates from axisymmetry.
We performed the analysis of HD 199419 based on the phase-resolved, four Stokes parameter observations obtained with the HARPSpol instrument. The full set of spectropolarimetric observations is comprised of 36 individual Stokes parameter observations, which have signal-to-noise ratio of 200–300 and cover the entire rotational period of the star.
The results of our magnetic Doppler imaging reveal that the magnetic field of HD 119419 is complex, confirming previous studies. We consider the results for HD 119419 together with magnetic Doppler imaging results obtained for other Ap and Bp stars in the context of fossil field evolution theory in stars with radiative envelopes.

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