F P11 Spotted Li abundance on the surface of the CP star HD 3980

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A new member of the intriguing group of "Li-spotted" CP stars has been found. We report here the results of the high spectral resolution monitoring of the star HD 3980 in the Li I 6708 Å spectral region obtained with the 74-inch telescope of Mount Stromlo Observatory. HD 3980 is a late type Ap SrCrEu star with strong double-wave photometric variations in the visible and in the near infrared spectral regions. We estimated the effective temperature, surface gravity, mass, luminosity, and radius of this star, as well as the rotational axis inclination angle. We studied the variations of the equivalent width and position of the Li I line as a function of the rotation phase and showed that Li line originates from two relatively small regions situated diametrically opposed on the stellar surface. The correlation between the light curve, variations of the Li I line profile and magnetic field strength can be explained in terms of a spotted oblique rotator model. Possible mechanisms for the Li enrichment are discussed.