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PERIODIC BEHAVIOUR OF THE HeI 6678 Å EMISSION LINE IN γ Cas

POLLMANN, ERNST[1]; GUARRO FLÓ, JOAN[2]

[1] Emil-Nolde-Str. 12, 51375 Leverkusen, Germany

[2] Balmes 2, 08784 Piera (Barcelona), Spain

e-mail: ernst-pollmann@t-online.de; jguarro@telepolis.com

Introduction

The Be star γ Cas (27 Cas, HD 5394, HR 264) is a primary component of a spectroscopic binary and is the very first Be star known, discovered by Secchi (1866). Spectroscopically γ Cas has been investigated mostly in the Balmer lines, mainly in Hα. Recent studies considered He and Fe II lines as well as the kinematics of the circumstellar shell (Hanuschik 1994, Smith 1995). It is believed that a local density enhancement – a one-armed density spiral – is embedded in the disk of γ Cas. Precession of this density enhancement has been observed interferometrically by Berio et al. (1999). They found that this enhanced equatorial density pattern may be located at 1.5 stellar radii from the stellar surface. Stee et al. (1998) proposed that He excitation and ionization region, responsible for the emission in the HeI 6678 Å line, extend to 2.3 stellar radii. Thus, the HeI 6678 Å line has