

N38c Polarization measurements of the luminous blue variable HR Carinae

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We have made BVRI polarization measurements of HR Car on ten occasions during the period JD 2447919 to JD 2449014. All our observations are on the rising part of the light curve. We find the presence of intrinsic variable polarization in HR Car. This result implies that the scattering material situated close to the star is not spherically symmetric and it varies with time. The observations are consistent with the bi-polar geometry of the nebula. The variations in intrinsic polarization in HR Car may be due to temporal variations in the structure of the circumstellar material. The observed variations in the position angle of the intrinsic polarization indicate that even though the nebula is bipolar on a large scale, on a smaller scale, the variations in the distribution of the scattering material are not axisymmetric. The geometry of the dust shell and the nebula around HR Car appears to be similar to that observed in bi-polar Type I planetary nebulae.