

The Dramatic Kinematics of the Hydrogen Deficient Planetary Nebula Abell 30

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The remarkable velocity structure of the different components of the hydrogen deficient planetary nebula Abell 30 have been revealed for the first time by obtaining spatially resolved profiles of the [O III] 5007 Å lines with the Manchester echelle spectrometer combined with the 2.1 m San Pedro Mártir telescope.

The outer 2' diameter shell is shown to be a mild ellipsoid expanding along its minor axis at 38.5 kms⁻¹. The radial motions of the prominent knots in the core are to some extent consistent with their origin in radiatively ionised clumps in both an equatorial disk and polar directions all expanding radially from the star at ≈ 39 kms⁻¹.

However, it is the ±200 kms⁻¹ velocity 'spikes' in the position-velocity arrays of the [O III] 5007 Å profiles over the edges of the irregular shells surrounding the bright core which give direct evidence of the presence of ablated flows driven by the fast wind from the central star.

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