

ATOMIC HYDROGEN TOWARDS 3C10

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New aperture-synthesis observations of HI in absorption towards 3C10 with high velocity resolution (0.6 km s^{-1}) and moderate angular resolution (1 arcmin) have been made with the Westerbork Synthesis Radio Telescope. These are an extension of the survey by Schwarz, Arnal & Goss (1980). A selection of the data has been studied in a preliminary way, covering the Perseus-Arm absorption feature ($\sim -50 \text{ km s}^{-1}$ with respect to the Local Standard of Rest).

The absorption feature is sharply bounded in velocity, occurring between -58 km s^{-1} and -46 km s^{-1} . There are multiple components in velocity and in space across the face of the supernova remnant. The main component has a maximum optical depth of > 3.5 and a FWHP of 2.0 km s^{-1} , centred on -48 km s^{-1} . Its angular size is ~ 6 arcmin by 3 arcmin, corresponding to ~ 4 pc by 2 pc at a distance of $2\frac{1}{2}$ kpc. This component covers the southeastern half of the remnant, the northwestern half is almost completely free of absorption - the boundary between the two regimes is very sharp (< 1 arcmin). Part of the main absorption feature forms a thin filament right across the face of the remnant at a position angle of $\sim 40^\circ$. Maps of HI emission made with the Cambridge Half-Mile Telescope (Albinson & Gull, 1982) show an emission filament $\sim 1^\circ$ in length lying to the northeast of the position of the remnant in a radial orientation. The radial velocity of the emission filament is $\sim -49 \text{ km s}^{-1}$; it is suggested that the emission and absorption filaments are continuations of each other. The number density of HI in the main absorption feature is estimated to be ~ 300 to 1000 cm^{-3} .

This work will be published in full elsewhere in the near future (Albinson, Kalberla, Schwarz & Goss, in preparation).

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Left to right: Van Driel, Bania, Crovisier, Pismis, Burton, Hu Fu-Xing
and Mo Jing-Er

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