Observed Characteristics of G21.5-0.9 Pulsar Wind Nebula

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G21.5-0.9		
Property	**Value**	**Citations**
PWN radius	40”	Matheson & Safi-Harb (2010)
SNR radius	150”	Matheson & Safi-Harb (2010)
Spin down Luminosity	$3.3 \times 10^{37}\ \frac{erg}{s}$	Camilo et al. (2006)
Period	$61.86\ ms$	Camilo et al. (2006)
Surface Magnetic Field	$3.6 \times 10^{12}\ G$	Camilo et al. (2006)
Distance	$4.7 \pm 0.4\ kpc$	Camilo et al. (2006)
Expansion Speed	$910 \pm 160\ \frac{km}{s}$	Bietenholz & Bartel (2008)
Angular Expansion Speed	$38.39 \pm 6.75\ \frac{mas}{yr}$	Bietenholz & Bartel (2008)
Characteristic Age	$4.85\ kyr$	Camilo et al. (2006)
1.43 GHz total flux density	$7 \pm 0.4\ Jy$	Bietenholz et al. (2011)
4.7 GHz total flux density	$6.7 \pm 0.3\ Jy$	Bietenholz & Bartel (2008)
15 GHz total flux density	$5.6 \pm 0.3\ Jy$	Salter et al. (1989)
84.2 GHz total flux density	$3.9 \pm 0.7\ Jy$	Salter et al. (1989)
0.5 - 10 keV unabsorbed flux[1]	$9.35 \times 10^{-11}\ \frac{erg}{s\ cm^2}$ $7.5 \times 10^{-11}\ \frac{erg}{s\ cm^2}$	Safi-Harb et al. (2001) Safi-Harb et al. (2000)
0.5 - 10 keV photon index[2]	$\Gamma_1 = 1.4$ $\Gamma_2 = 1.9$ $E_{break} = 2.7\ keV$ $N_H = 1.97 \times 10^{22}\ cm^{-2}$	Safi-Harb et al. (2000)
2 - 8 keV flux, broken power law ($r < 165$”)	$5.27 \pm 0.08 \times 10^{-11}\ \frac{erg}{s\ cm^2}$	Nynka et al. (2014)
3 - 45 keV photon index ($r \leq 30$”)	$\Gamma_1 = 1.852 \pm 0.011$ $\Gamma_2 = 2.099^{+0.019}_{-0.017}$ $E_{break} = 9.0^{+0.6}_{-0.4}\ keV$	Nynka et al. (2014)
3 - 45 keV photon index (30” $< r \leq 60$”)	$\Gamma_1 = 1.98^{+0.02}_{-0.03}$ $\Gamma_2 = 2.14^{+0.02}_{-0.03}$ $E_{break} = 9.74 \pm 1.0\ keV$	Nynka et al. (2014)
20 - 40 keV unabsorbed flux[3]	$0.28 \pm 0.02 \frac{ct}{s}$ $1.28 \pm 0.1 \times 10^{-11}\ \frac{erg}{s\ cm^2}$	Matheson & Safi-Harb (2010)

[1] The first reported value is calculated, using the fact that 85% of total unabsorbed flux comes from $r \leq 40$” inner core. Note the discrepancy between values.

[2] Using a broken power law. For $r \leq 40$” using $N_H = 1.97 \times 10^{22}\ cm^{-2}$

[3] Flux energy value calculated using NASA’s WebPIMMS tools with $\Gamma = 2.2 \pm 0.1$ (20-100 keV photon index)

40 - 100 keV unabsorbed flux[4]	$0.26 \pm 0.02 \frac{ct}{s}$ $2.19^{+0.14}_{-0.15} \times 10^{-11} \frac{erg}{s\ cm^2}$	Matheson & Safi-Harb (2010)
20 - 100 keV flux	$5.2 \times 10^{-11} \frac{erg}{s\ cm^2}$	de Rosa et al. (2009)
20 - 100 keV photon index	2.2 ± 0.1	de Rosa et al. (2009)
1 - 10 TeV photon index	2.08 ± 0.22	Djannati-Ataĭ et al. (2008)
1 TeV photon density	$4.59 \pm 1.00 \times 10^{-13} \frac{photons}{TeV\ s\ cm^2}$	Djannati-Ataĭ et al. (2008)

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[4]Flux energy value calculated using NASA's WebPIMMS tools with $\Gamma = 2.2 \pm 0.1$ (20-100 keV photon index)