

$$P_{pc}(t) = \gamma_{se}P_A t - \frac{1}{2}\gamma_{se}P_A(\gamma_{se} + \Gamma_{pc} + d_{pc})t^2 \quad (1a)$$

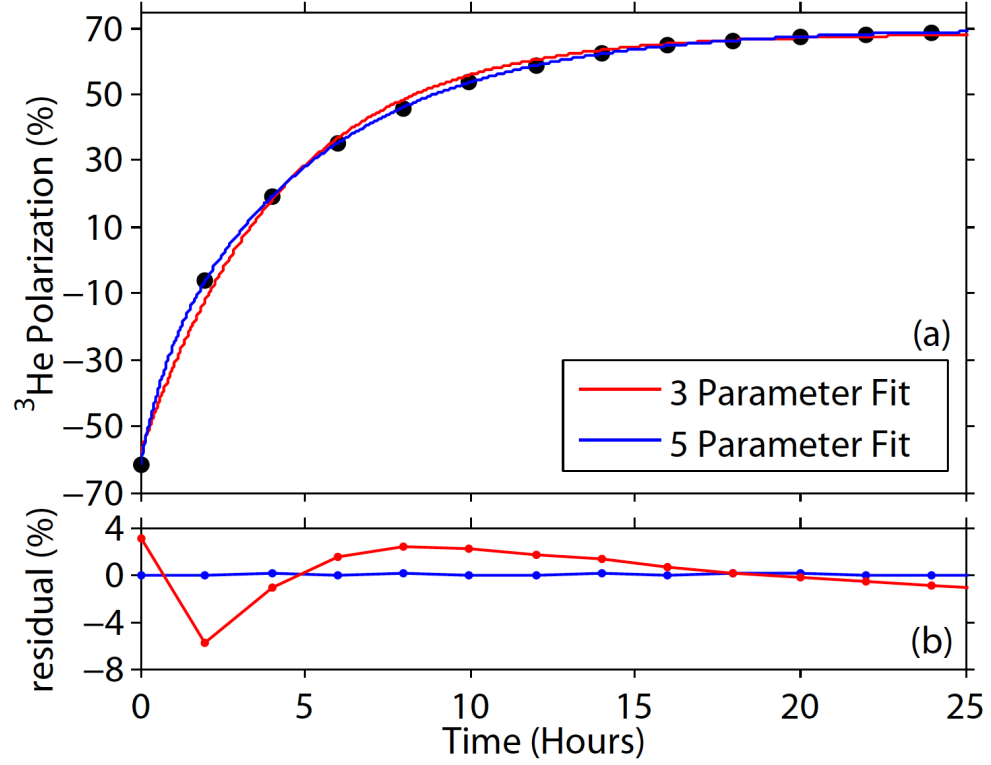
$$P_{tc}(t) = \frac{1}{2}\gamma_{se}P_A d_{tc}t^2 \quad (1b)$$

$$\langle \Gamma \rangle = \langle \Gamma \rangle_c - [n_0 - f_{pc}n_{pc}/f^d(t_{pc}) - f_{tc}n_{tc}/f^d(t_{tc})]/\tau^d \quad (2)$$

$$(\Gamma_s - \langle \Gamma \rangle)$$

The coefficients of pressure broadening for  $^3\text{He}$ ,  $^4\text{He}$  and  $\text{N}_2$  are listed in Table ??.

EXP	Cell	Lasers	$I_0$ W/cm <sup>2</sup>	$T_{pc}^{set}$ °C	$P_{He}^\infty$	$\Gamma_s^{-1}$ hrs	$\langle \Gamma \rangle^{-1}$ hrs	$\langle P^A \rangle$	$P_{line}^A$	$D_{fr}$	$D_{pb}$	[R] 10 <sup>14</sup> /s
saGDH	Proteus	3B	3.8	180	0.46	27	74	-	-	0	0	-
	Priapus	3B	3.8	180	0.44	21	56	-	-	0	0	-
	Penelope	3B	3.8	180	0.39	18	46	-	-	0	0	-
	Powell	3B	3.8	180	0.38	13	25	-	-	0	0	-
	Prasch	3B	3.8	180	0.33	13	33	-	-	0	0	-
GEN	Al	2.5B	3.2	235	0.53(04)	7.86(08)	24.2(9)	-	-	20*	4.53(25)	-
		5B	6.1	235	0.54(04)	6.73(21)	24.2(9)	-	-	20*	4.53(25)	-
	Barbara	2.5B	1.6	235	0.37(03)	5.5(08)	38.8(1.6)	-	-	20*	4.80(25)	-
		5B	3.1	235	0.57(04)	4.76(63)	38.8(1.6)	-	-	20*	4.80(25)	-
	Gloria	3B	1.7	235	0.60(04)	6.13(06)	31.6(1.5)	-	-	20*	7.20(40)	-
	Anna	1B	0.6	235	0.33(02)	5.60(36)	9.50(71)	-	-	20*	9.64(57)	-
		1.5B	1.0	235	0.39(02)	5.37(16)	9.50(66)	-	-	20*	9.50(71)	-
	Dexter	1.5B	1.5	235	0.47(04)	7.58(17)	16.5(7)	-	-	20*	20*	-
		5B	6.1	235	0.49(04)	6.63(13)	16.5(7)	-	-	20*	20*	-
	Edna	3B	2.4	235	0.56(04)	5.71(02)	26.5(1.5)	-	-	5*	3.63(20)	-
	Dolly	3B	1.0	235	0.43(03)	6.16(07)	30.3(1.5)	-	-	20*	20(1.3)	-
		1N1B	1.4	235	0.62(03)	5.79(07)	30.2(1.6)	-	-	20*	20(1.3)	-
	Simone	2N1B	3.8	215	0.32(02)	14.1(1)	20.0(7)	0.90(13)	0.91(05)	10.7(5)	8.89(45)	0.20
		2N1B	3.8	240	0.48(04)	6.89(20)	19.9(8)	-	-	-	9.76(49)	-
		2N1B	3.8	255	0.58(03)	6.05(13)	19.9(8)	0.90(13)	0.92(05)	12.5(8)	10.3(52)	0.90
	Sosa	2N1B	1.9	160	0.57(03)	16.7(09)	57.0(5)	0.91(14)	1.00(03)	0	0	1.97
		2N1B	1.9	170	0.61(03)	11.7(03)	56.8(7)	0.90(12)	0.98(03)	0	0	3.0
		2N1B	1.9	180	0.55(03)	8.79(09)	56.6(9)	0.87(14)	0.97(03)	0	0	4.30
		2N1B	1.9	190	0.40(03)	6.39(22)	56.2(1.2)	0.72(18)	0.82(03)	0	0	5.72(
		2N1B	1.9	200	0.26(01)	5.04(17)	56.1(1.3)	-	-	0	0	-
Transversity	Boris	3B	1.8	235	0.42(03)	6.25(06)	21.1(1.2)	0.69(21)	0.79(07)	1.96(18)	2.45(23)	2.19
	Samantha	3B	1.8	235	0.50(03)	6.30(13)	20.9(1.1)	-	-	5*	4.34(23)	-
		3N	2.6	235	0.68(03)	4.62(03)	17.2(1.0)	0.96(04)	0.99(03)	4.37(10)	4.34(23)	1.80
	Alex	2N1B	2.6	235	0.59(03)	4.81(03)	27.2(1.6)	0.92(10)	0.99(03)	1.37(08)	1.19(07)	4.08
	Moss	1N1B	1.8	235	0.62(03)	5.35(04)	24.6(1.4)	0.93(12)	0.95(09)	5*	2.40(13)	-
	Tigger	1N1B	1.8	235	0.51(03)	4.89(05)	12.2(8)	0.97(11)	0.95(09)	5*	5*	-
	Astral Weeks	2N1B	2.6	235	0.69(03)	6.57(12)	35.6(1.6)	0.99(04)	0.99(03)	7.09(55)	6.21(56)	0.97
	Stephanie	3N	2.6	235	0.71(04)	4.55(09)	37.3(2.0)	0.93(09)	0.99(03)	1.39(11)	1.50(10)	5.08
	Brady	1N	0.9	235	0.62(03)	4.8(1.1)	27.1(1.6)	-	0.95(03)	5*	2.36(24)	-
		2N	1.8	235	0.68(03)	5.52(70)	27.2(1.5)	-	0.99(03)	5*	2.36(24)	-
		3N	2.6	235	0.70(03)	5.30(01)	27.2(1.4)	0.93(09)	0.99(03)	2.60(20)	2.36(24)	2.87
	Maureen	3N	2.6	235	0.66(03)	5.42(12)	23.5(1.3)	0.97(11)	0.97(09)	5*	4.42(55)	-



**Figure 1:** (a) Shown is a spinup of the target Brady. The spinup data has been fit with a 3-parameter and a 5-parameter formalism. (b) The residuals of the two fits. The error for 3-parameter fit is larger because it does not account for diffusion between two chambers. Adopted from [?].

The energy levels of  $^{87}\text{Rb}$  are shown in Fig. ??, where  $\Gamma_A$  is the pressure dependent FWHM,  $\Gamma_A \approx 0.04 \text{ nm/amg} \cdot [^3\text{He}]$ .

# Bibliography