

		final g14 polarizations - including Transfer-loss correction (2%)				
run period	tgt #	H_pol	H_pol_error		D_pol	D_pol_error
silver 1	21a	14.70	0.18		25.61	0.68
silver 2	21a	-14.30	1.16		22.97	0.56
silver 3	21a				20.88	0.51
silver 4	21a				-17.18	0.48
silver 5	21a				-15.48	0.69
gold 1	19b	27.22	0.11		25.97	0.80
gold 2	19b	26.88	0.42		26.79	0.92
gold 3&4	19b	18.27	0.22		15.75	0.23
last 1&2a	22b	25.45	0.38		25.77	0.82
last 2b&3	22b	22.56	0.15		24.03	1.53
last 4&5&6	22b	17.73	0.30		-16.20	1.11

g14 HD pol SYS errors (tgts 21a, 19b, 22b)

Uncertainties in reference Thermal Equilibrium (TE) measurement:

<i>PD noise</i>	0.3 %	white noise in PD NMR while in HDice Lab
<i>Temperature err</i>	0.2 %	drift, thermal gradients in HD from radiant heat load
<i>H bkg signal</i>	0.4 %	H bkg with no target – TE(H) measured and TE(D) calculated.
<i>Stoichiometry</i>	0.1 %	deviation of H:D of 1:1, due to H ₂ and D ₂ impurities
<i>Bkg subtraction</i>	0.6 %	Err in signal integral from imperfect separation of bkg
<i>Incomplete relaxation</i>	0.5 %	T ₁ for TE measurement can be comparable to sweep time, so that polarization lags the field

Uncertainties in measurement of frozen-spin signal:

<i>IBC noise</i>	0.6 %	residual effect of white noise in IBC NMR & PD-level 2; <i>note</i> : dominant variation included in Peng's <i>std dev</i> of peak area integrations (which he refers to as <i>stat errors</i>)
<i>Hall-B noise jumps</i>	0.5 %	variations in signal area after correction for signal jumps
<i>circuit non-linearity</i>	4.0 %	from the quadratic dependence of the circuit transducer gain, which was not corrected in g14; variation is taken as the maximum observed at BNL for the same (violet) cable: 0.024/0.600 = 0.04
<i>Differential rf homogeneity</i>	1.4 %	BNL value (4.5%), scaled down by <i>MicroWave Studio</i> calc comparing BNL <i>saddle</i> coil with 25 mm OD tgt to g14 <i>birdcage</i> coil with 15 mm OD tgt, x 1.5 (imperfect models)
<i>rf depolarization</i>	0.1 %	Residual uncorrected decrement from repeated rf sweeps

Uncertainties in relating frozen-spin signal to TE:

<i>Circuit drift</i>	1.8 %	1/f ² variation from connecting frozen-spin signal to TE reference separated by ~100 days
<i>Lock-in gain differential err</i>	2.9 %	SRS 844 manufacturer's gain error over multiple decades connecting <i>frozen-spin</i> and TE signals
<i>Differential ramp-rate</i>	1.0 %	Signal integration requires knowing the ramp rate; actual ramp rate differs from nominal due to eddy current shielding; error in g14 analysis has been minimized by using independent calibrations for up and down sweeps in both <i>frozen-spin</i> and TE measurements.
<i>TC transfer losses</i>	2.0 %	Variation in polarization loss during a TC transfer; taken as 100% of the applied correction.

<i>TOTAL systematic error</i>	6.0 %	for both <i>H</i> and <i>D</i> polarization; taken as the quadrature sum
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