

| Cell Name | Fill Type | Geometry | Glass | Metal | Max Lifetime (hr) | Fill Date |
|---------------|-----------|---------------------|-------|------------------|--------------------|-----------|
| Tyrion | NGP | Sphere | GE180 | Gold on glass | 1.21 | 6/18/09 |
| Gold Maiden1 | NGP | Flange | Pyrex | Gold on Copper | 2.14 | 6/18/10 |
| Gold Maiden2 | NGP | Flange | Pyrex | Gold on Copper | None | 8/14/10 |
| Gold Maiden3 | NGP | Flange | Pyrex | Gold on Copper | 6.49 | 11/11/10 |
| Goldfinger | NGP | Vertical | Pyrex | Gold on Copper | 3.59 | 4/28/13 |
| Cupid | NGP | Vertical | Pyrex | Bare Copper | 3.13 | 6/15/13 |
| Goldeneye | NGP | Vertical with Valve | Pyrex | Gold on Copper | 13.94 | 10/2/13 |
| GoldRush | NGP | Vertical | Pyrex | Gold on Copper | 14.81 [†] | 11/8/13 |
| Pyrah | NGP | Vertical | Pyrex | None | 26.52 [†] | 2/1/14 |
| GoldenVec | NGP | Horizontal | Pyrex | Gold on Copper | 10.6 | 10/18/14 |
| TitanVec | NGP | Horizontal | Pyrex | Gold on Titanium | 0.52 | 12/15/14 |
| GoldenVec2 | Cryogenic | Horizontal | Pyrex | Gold on Copper | 15.6 | 2/14/15 |
| Titan | NGP | Vertical | Pyrex | Bare Titanium | None | 3/11/15 |
| GoldenVec180 | Cryogenic | Horizontal | GE180 | Gold on Copper | 4.43 | 6/17/15 |
| GolderVec360 | Cryogenic | Horizontal | GE180 | Gold on Copper | 3.01 | 7/11/15 |
| Tweety | Cryogenic | Vertical | Pyrex | Canary Glass | 22.7 | 9/22/15 |
| Sylvester | Cryogenic | Horizontal | GE180 | Canary Glass | 6.39 | 11/20/15 |
| Kappa1 | Cryogenic | Sphere | GE180 | None | 72.17 | 2/6/16 |
| Goldfinger180 | Cryogenic | Vertical | GE180 | Gold on Copper | 12.4 [†] | 5/19/16 |

Table 1: Shown are the fill information, design and maximum measured lifetime of the test cells. Fill type is the method of cleaning gas filled into the cell. [†] indicates the maximum lifetime was obtained at an elevated position. Although canary glass is not metal, it is listed in the column of metal for Tweety and Sylvester for the sake of convenience.

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

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

This is a test:

$$V_1(\vec{R}) = \gamma(R) \vec{N} \cdot \vec{S} + A(R) \vec{I}_b \cdot \vec{S} \quad (2)$$

in Eq. 2

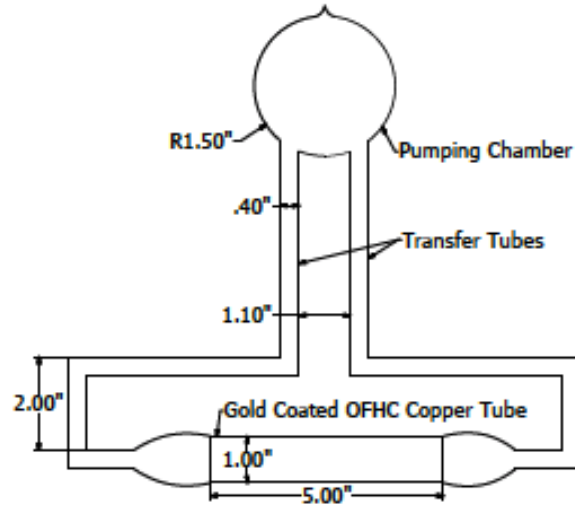


Figure 1: Design of the horizontal cell GoldenVec.

| | turns | radius | separation |
|---|-------|--------|------------|
| x | 42 | 33 cm | 64 cm |
| y | 100 | 28 cm | 56 cm |
| z | 8 | 66 cm | 66 cm |

See in Fig. ??

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

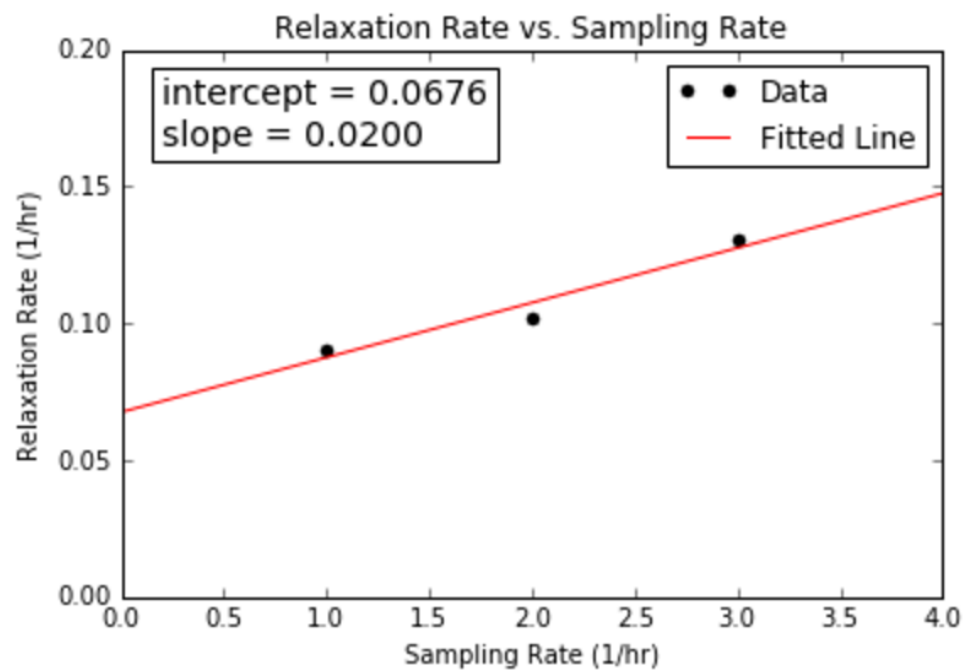


Figure 2: A linear fit to extract lifetime corrected for relaxation due to PNMR losses.

Bibliography