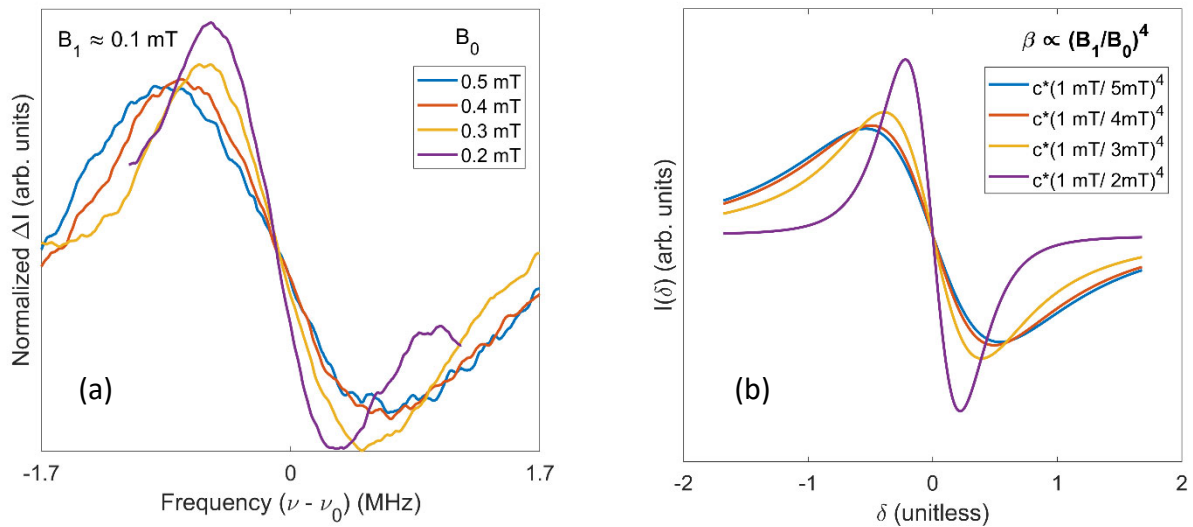


**FIG. 1.** Frequency swept ultra-low field EDMR. The amplitudes have been normalized. (a)  $B_0$  set to 0.2 mT, (b)  $B_0$  set to 0.3 mT, (c)  $B_0$  set to 0.4 mT, and (d)  $B_0$  set to 0.5 mT. It is clear that the MPTs are dependent on both  $B_0$  and  $B_1$ . The MPTs occur at integer divisions of the RF resonant frequency. The  $n = 3$  transition is observed for  $B_1$  at 0.10 mT. The  $n = 2$  transition is observed for  $B_1 \geq 0.06$  mT.



**FIG. 2.** (a) Two-photon line shape as a function of  $B_0$  illustrating spectral narrowing with a decrease in  $B_0$ . (b) Simulated two-photon transition using  $I(\delta) \propto 1/(1 + \beta^2 \delta^2)$  where  $\beta \propto (B_1/B_0)^4$  is a dimensionless parameter describing the drive and  $\delta$  is a dimensionless parameter describing the detuning [3].