Modified Bloch equations report

**Due Thursday, April 05**

**Abstract**

**Introduction**

Explain the Heisenberg spin exchange interaction in EPR spectroscopy.

**Materials and Methods**

Briefly describe the modified Bloch equations.

**Results and Discussion**

Simulate EPR spectra and using the parameters below and then fit them:

numP = 4096; B0 = 3307.5; deltaB = 70; Bcen = B0 + deltaB/2;

M0 = 10^3; omega1 = 1; E = 1i\*omega1\*M0; a = 15; con =0.0;

linWid1 = 0.75; linWid2 = 0.75; linWid3 = 0.75

linWid1 = 0.75; linWid2 = 0.75; linWid3 = 0.8

linWid1 = 0.75; linWid2 = 0.75; linWid3 = 0.85

linWid1 = 0.75; linWid2 = 0.75; linWid3 = 0.9

linWid1 = 0.75; linWid2 = 0.75; linWid3 = 1.0

linWid1 = 0.75; linWid2 = 0.75; linWid3 = 1.25

linWid1 = 0.75; linWid2 = 0.75; linWid3 = 1.5

linWid1 = 0.75; linWid2 = 0.75; linWid3 = 1.75

linWid1 = 0.75; linWid2 = 0.75; linWid3 = 0.75

linWid1 = 1.0; linWid2 = 1.0; linWid3 = 1.0

linWid1 = 1.25; linWid2 = 1.25; linWid3 = 1.25

linWid1 = 1.5; linWid2 = 1.5; linWid3 = 1.5

linWid1 = 1.75; linWid2 = 1.75; linWid3 = 1.75

linWid1 = 2.0; linWid2 = 2.0; linWid3 = 2.0

linWid1 = 2.25; linWid2 = 2.25; linWid3 = 2.25

linWid1 = 2.5; linWid2 = 2.5; linWid3 = 2.5

linWid1 = 2.75; linWid2 = 2.75; linWid3 = 2.75

linWid1 = 3.0; linWid2 = 3.0; linWid3 = 3.0

Plot your fitting results such as Aiso, giso , τR  and ΔBpp(lwpp) as a function of linWid3.

Discuss your results.

**Conclusions**

**References.**

**Weil – EPR – Bloch Eqs. pdf**[**1**](#_ENREF_1)

**(1) Weil, J. A.; Bolton, J. R.; Wertz, J. E. *Electron Paramagnetic Resonance: Elementary Theory and Practical Applications*. John Wiley and Sons, Inc.: New York, 1993.**