** This examination is open book, but is to be worked on independently. You may not discuss or otherwise communicate any aspect of the exam with anyone other than C. Martin. This includes any discussions with anyone after you are done with the exam, but before the exam’s due date and time. This is very important.

Due in LGRT 403D, 9:30am, Monday, May 18

Show your work for full credit. Be concise, but complete. Avoid long rambling answers which indicate that you don’t really understand the question.

1. (30 points) Your student has brought you the following binding data and fitting analysis (the protein concentration is 1.0 μM). What do you tell him? Are you ready to publish? (data are available for you to play with on our WEB site).
2. (20 points) Consider the following two NMR pulse sequences:
   a) $180^\circ - \tau - 90^\circ - \text{acquire}$
   b) $90^\circ - \tau - 180^\circ - \text{acquire}$

Ignoring the sinusoidal oscillations, if you follow the decay in the acquisition signal, what does that decay tell you? Draw vector cartoons if that helps.

3. (30 points) You have just collected the spectrum shown at right. Download the data from our WEB site and deconvolute this into individual spectra. Present and discuss your results.
4. (20 points) Consider the ITC data presented at right. What do you think the two traces in part (a) represent and why? Explain the differences.