CH-314 Structural Analysis
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Jigsaw 3D

1. [Keeler Section 4.8] In a simple pulse-acquire experiment to determine a pulse length, an operator observed a positive signal for pulse lengths of 5 and 10 μs. As the pulse was lengthened further the intensity decreased, went through a null at 20.5 μs and then became negative.

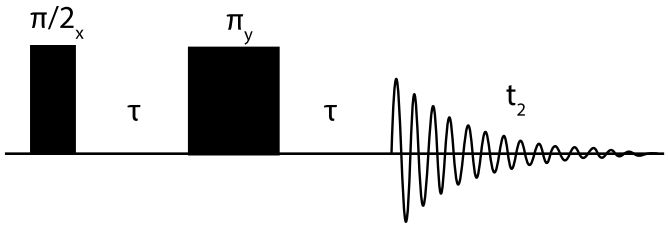
    a. Explain what is happening in this experiment.

    b. Use the data to determine the RF field strength in Hz and in rad·s^{-1}.

    c. Find the length of a 90° pulse.

    d. At what pulse length will the next null be observed?

2. [Keeler Section 4.9] The spin echo sequence is shown below. *See also: Jigsaw 3A.2*



    a. Use vector diagrams to show what happens during the spin echo sequence.

    b. In what way does the result differ from a spin echo in which the 180° pulse is about the x-axis? Without drawing up further detailed diagrams, state what the effect of applying the refocusing pulse about the x-axis would be.