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Date: Mon 29 Mar 21:50:52 EDT 2010**From:** Seth Aubin <saubi@wm.edu> [Add To Address Book](#) | [This is Spam](#)**Subject:** AMO Physics assignment**To:** jseldred@wm.edu, fmforn@wm.edu, jlgate@wm.edu, bgrich@wm.edu, rbziel@wm.edu, kccox@wm.edu, rjwilcox@wm.edu, tshorrom@wm.edu, eljensen@wm.edu, dwill@wm.edu, jpfield@wm.edu, aziltz@gmail.com, mkivory@wm.edu, pxu@wm.edu, cchen@wm.edu, mtsimons@wm.edu

Dear AMO Physics class,

As stated in the tour of the Novikova-Mikhailov Lab today, the next assignment is to explain the middle peak between the two saturation absorption peaks of the D1 line in Rb87. The formal assignment is the following:

Explain in your own words and in less than one page, including at least one figure of your own making, why there is a third peak in saturation absorption spectroscopy that is exactly midway between the two optical frequencies of the $5S_{1/2} F=2 \leftrightarrow 5P_{1/2} F=2$ and $5S_{1/2} F=2 \leftrightarrow 5P_{1/2} F=1$ transitions. This third peak is referred to as a cross-over resonance. While a qualitative discussion of the effect is necessary, any quantitative explanation is also helpful. Use of references (journals, on-line, books, etc ...) is permitted and encouraged, though these should be cited.

The writing assignments are due in class on Friday, April 2. Extensions until the following monday will entertained, but must be requested.

Cheers,

Prof. Aubin

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