

**Environmental Chemistry**  
**Written Response 12**  
**Due Tuesday, December 8, 2009**

Lecture of the Day: William Chen on Nuclear Energy

Texts: Baird and Cann (BC) Chapter 9, pp. 379-395  
Spiro, Purvis-Roberts, and Stigliani (SPS) Chapter 8, pp. 12-31

- Please identify strengths (what was clear, interesting, and/or intriguing?), weaknesses (what was unclear, boring, or missing?) Please provide some specifics.
- You must write down at least one question that the presenter can address.
- You may write neatly on this page (front and back) or type your comments separately.
- I also expect you to take notes during the lecture (just as if I were lecturing), and I will collect your notes after class. In order to earn full credit for this assignment, you must provide some substantial commentary on the texts, and take good notes.

BC

- ⊕ Table 9-2 - some useful and interesting hard facts
- ⊖ Representing the  ${}^1_0\text{n} + {}^{235}_{92}\text{U}$  rxn with balls -- they don't show the approximate relative sizes of the particles, so what is their point?
- ⊕ Fig 9-2 is pretty clear and easy to understand
- ⊖ The classic "belt of stability" would aid the discussion on p. 382 (see SPS Fig 8.2)
- Q. Are there other viable fission reactions? Would any of them produce less radioactive daughter nuclei?
- ⊕/⊖ Fig 9-3 is interesting, but should be integrated more into the text.
- Q. Is it cheaper to use heavy water than use enriched uranium? If so, why isn't this approach used more? Is the tritium by-product more problematic?
- ⊖ Kind of random to provide highly detailed chemistry about reprocessing. As it is, the discussion on pp. 388-389 just provides a series of facts. It would be more interesting to unpack the chemistry.
- ⊕/⊖ Good to do an  $E=mc^2$  calculation, but it's odd to put it at the very end of the chapter.