

## **A NEW ELEMENT**

Your Final Project is to propose a new element, and justify why such a new element should be created. You may assume it is technologically possible but very expensive (this is what Tony Stark does in the movie *Iron Man 2*) and you are going to pitch the idea to investors who are also well-versed in science.

Your final presentation will be at the LLC Symposium on Mon, Dec 5 (6-8pm) but this assignment is for you to mock up a proposal so I can evaluate the feasibility of your group's idea. You won't have everything figured out yet, but you should at least have some ideas of the properties of your new element and how it will interact with known elements. (Otherwise they might be like "nanomites" that consume everything and lead to world destruction.)

*Things to consider:*

Elemental Properties:

- The atomic and electronic structure of your new element (it does not have to follow the "rules" we have learned for the known elements but you should be able to provide creative justification why it might exist)
- How it might exist in its elemental state. Would it be a solid, liquid or gas? Would it conduct electricity? Is it malleable? What might be its melting and boiling points? What might its phase diagram look like? What is its density? What is its molar mass?

Compound Properties:

- What known elements would it interact with? Would it form strong chemical bonds with other elements? If so, what type and why?
- Would it form weak interactions with other substances? In particular, how might it interact with common substances we are exposed to? Light (electromagnetic radiation)? Common gases in our atmosphere? Earth/Sand (silica)? Organic matter?

Usefulness/Dangers:

- There must be some practical use for your new element to justify the high cost of synthesizing it. How might your new element be useful (either in an elemental or compound state)? Justify these by connecting them with the properties above.
- Could your new element be dangerous? How so? What measures could you take to ensure its safe use?

**The document with your proposed new compound(s) should be in either Word (.docx) or PDF format so that I can read it.**

*You are most welcome to stop by my office (or send me e-mail) to bounce off your ideas and suggestions.*