

PHY983 - Nuclear Astrophysics - Spring 2009

Homework set 2

Due: Friday, Jan 30, 2007, at beginning of class

Keywords: abundances

1. [70%] Use the K. Lodders ApJ591 (2003) 1220 paper to calculate the total mass of gold (in grams) in the solar system.
2. [30%] Gold is a siderophile element, which means it likes to bond with iron. According to some theories, when the earth formed, gold and iron together separated from most other elements and formed the earth's core. Assuming this is correct, if one would extract all the gold from earth's core and plated the entire earth surface with it evenly, how thick would that gold coating be? (Assume the core is 33% of earth's mass, and consists of 90% iron).

Once you have done the calculation check out

<http://www.abc.net.au/science/articles/2006/06/15/1663566.htm?site=science&topic=enviro>, this is all it takes to make headlines and become famous.

3. Reading: read in Iliadis: Chapters 1.5 - 1.6