Contribution ID: **110** Type: **Poster**

Recoil-radiolabelling of nanoparticles with 7Be generated by 7Li(p,n)7Be reaction in mixed powder targets.

Monday, 17 September 2012 17:30 (1h 30m)

Nano-sized materials have highly interesting physico-chemical properties that may be employed to great advantage in many areas. However, their application in various fields of society (e.g. in consumer products, including cosmetics or food) also implies safety issues. Many studies on nanoparticle toxicity have been performed, but a basic problem regarding risk assessment is nanoparticle quantification. This may easily be addressed by using radiotracers and radiolabelled nanomaterials. Some industrially produced nanomaterials (e.g. SiO_2, Al_2O_3, or carbon-based nanoparticles) are
difficult to radiolabel without significant chemical surface modification.

We present here a solution to this difficulty based on recoil light-ion implantation (e.g. Be-7). An overview of different radiolabelling methods as well as the Be-7 ion implantation method is presented. Radiolabelling yields and the influence of irradiation on nanomaterials is also discussed.

Primary author: Dr KOZEMPEL, Jan (Charles University in Prague, Czech Republic)

Co-authors: BULGHERONI, Antonio (European Commission Joint Res. Cen. (ECJRC)); Ms SIMONELLI, Federica (JRC); GIBSON, Neil (Joint Research Centre); Dr HOLZWARTH, Uwe (JRC)

Presenter: Dr KOZEMPEL, Jan (Charles University in Prague, Czech Republic)

Session Classification: Poster Session

Track Classification: Applications of radioactive tracers and nanoparticles