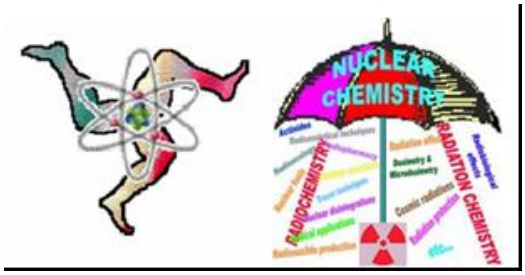

Contribution ID: **186** Type: **oral presentation**

Ultra sensitive measurements of Th-232 in copper by RNAA

Friday, 23 September 2011 11:40 (15 minutes)

Copper, thanks to its low content in radioactive contaminations, is a material widely used for shields, holders and others objects close to sensitive parts of the detectors in many experiments on Rare Events Physics. This imply that tools able to reach sensitivity of the order of <10-12 g of contaminants / g of Copper are of crucial importance.
A methodology based on Neutron Activation Analysis (NAA) has been developed to obtain an extremely high sensitivity in the analysis of 232Th in Copper samples. A detection limits of 5 x 10-13 g 232Th /g Cu have been achieved through the irradiation of 200 g of copper sample which subsequently was been radiochemical concentrated using Nitric Acids and then Actinide Resin from Eichrom Inc. Several elutions with various inorganic acids were done to concentrate the 232Th activation product (233Pa) from copper matrix and to also eliminate the radioactive background induced by the neutron bombardment to reach an higher sensitivity.

Primary authors: Dr SALVINI, Andrea (Università di Pavia); Dr PREVITALI, Ezio (INFN); Dr CLEMENZA, Massimiliano (Università di Milano Bicocca)

Co-author: Dr BORIO DI TIGLIOLE, Andrea (Università di Pavia)

Presenters: Dr SALVINI, Andrea (Università di Pavia); Dr CLEMENZA, Massimiliano (Università di Milano Bicocca)

Session Classification: Session 14

Track Classification: Radioanalytical Chemistry and Nanoparticles