



Contribution ID: 96

Type: oral

## The Measurement of Uranium Decay Daughters of by NDA

*Thursday, 23 October 2014 11:40 (20 minutes)*

The abundances of daughters of Uranium is important information to disclose the producing time of Uranium material but also to deduce if the Uranium material had been melted. But the abundance of those daughters is ultra trace, low to several 10-20%. It is difficult to analysis so far as to mass spectrum. For daughters such as  $^{231}\text{Th}$  and  $^{211}\text{Bi}$ , the emitted measurable  $\gamma$ -ray, can be used to analysis their abundance accurately. Firstly the abundance of  $^{234}\text{U}$ ,  $^{235}\text{U}$  and  $^{238}\text{U}$  can be acquired by MGAU code. Secondly a relative efficiency curve form 121 keV to 1001 keV can be fitted in combination with the areas of U isotopes full energy peak. Therefore the abundances of those daughters relative to U isotopes are possible to measured by thier  $\gamma$ -ray. For the daughters which could't emit measurable  $\gamma$ -ray, their abundance can be given by principle of cascade decay balance.

### Country or International Organization

China

**Primary author:** ZHANG, Hongjun (China Acadimy of Engineering Physics)

**Co-authors:** ZHAO, Deshan (China Academy of Engineering Physics); ZHANG, Qihao (China Academy of Engineering Physics)

**Presenter:** ZHANG, Hongjun (China Acadimy of Engineering Physics)

**Session Classification:** NDA Measurements I: Gamma Spectrometry