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Quo Vadis, neutron activation analysis?

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The opportunities of measuring the identities and amounts of chemical elements by measuring the activities induced by bombardment with neutrons was conceived more than 80 years ago. During the decades, practitioners worldwide have been inspired by the challenges of this neutron activation analysis methodology, by the needs from end-users and by technological innovations in irradiation and measurement techniques. Examples will be given how this resulted in advancement of the development and use of neutron activation analysis at the Reactor Institute Delft .

It has been demonstrated that the methodology of neutron activation analysis is now fully understood, that a complete uncertainty budget can be made and that measured quantity values can be metrological traceable to the S.I. As a result, it has been worldwide increasingly acknowledged as valuable and even indispensable to (inter)national programs for metrology in chemistry; provided the technique is operated by metrological competent practitioners.

The world's activation analysis community counts currently about 100 reactor-based neutron activation analysis laboratories and several tens of facilities using other neutron (and particle or photon) sources for activation. The number is decreasing for several reasons such as the lack of succession planning for retired people. Even if there is a succession plan: which challenges in the development and application of neutron activation analysis may inspire students to continue research on further development ; and in which applied fields we may call for awareness to prefer the technique above alternatives?

So the question is legitimate: quo vadis? How to go on, which road to take? Is there a road that inspires by technological or methodological advancement? Will there be –and preferably world-wide- requests for large scale measurement projects in which NAA would be methodology of choice? Or do we have to accept that the only passable path is the one which we already are; which means that we continue what we already were doing, accepting that there no new young generation will be inspired to take over?

Inspirations from the past, and considerations on a strategy to continue will be presented for further discussion during the conference.

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