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## MOLECULAR ACTIVATION ANALYSIS FOR CHEMICAL SPECIATION STUDIES

**Chifang Chai**

*Institute of High Energy Physics, Chinese Academy of Sciences,  
P.O.Box 2732, Beijing 100080, China*

The term of Molecular Activation Analysis (MAA) refers to an activation analysis method that is able to provide information about the chemical species of elements in system of interests, though its definition has remained to be assigned. Its development is strongly stimulated by the urgent need to know the chemical species of elements, because the total concentrations are often without any meaning when assessing health or environmental risks of trace elements.

In practice, the MAA is a combination of conventional instrumental or radiochemical activation analysis and physical, chemical or biochemical separation techniques. The MAA is able to play a particular role in speciation studies. However, the critical point in the MAA is that it is not permitted to change the primitive chemical species of elements in systems, or the change has to be under control; in the meantime it is not allowed to form the "new artifact" originally not present in systems.

Some practical examples of MAA for chemical species research performed recently in our laboratory will be presented as follows:

1. Chemical species of platinum group elements in sediment;
2. Chemical species of iodine in marine algae;
3. Chemical species of mercury in human tissues;
4. Chemical species of selenium in corn;
5. Chemical species of rare earth elements in natural plant, etc.

The merits and limitations of MAA will be described as well.

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