

MEGHÍVÓ

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Single Particles Handling and Analyses

c. előadására

Az előadás időpontja: 2009 április 17, péntek 10:00

Az előadás helye: MTA Izotópkutató Intézet XXI/B ép 3. emeleti előadó

Előadáskivonat:

A single environmental hot particle carries a wealth of information about its radiological, chemical and metallurgical history, including clues about its release-scenario. The physical and chemical characteristics of the particle bear upon its mobilization and long-term behavior in the ecosystem.

The ability to locate, re-locate, handle and analyze single, isolated particles is essential in the arenas of nuclear forensics, safeguards investigations, environmental research, and in events of accidental dispersal of radioactive materials. Single particles should be analyzed rather than agglomerates, because the latter invariably display averaged values, such as speciation or radionuclide dispersion in environmental samples or enrichment levels in safeguards samples.

A rainbow of advanced microanalytical techniques is presently available, often in remote laboratories. Full characterization of an individual particle is a multiple-instrument task that requires the ability to repeatedly re-locate and micromanipulate particles in the sub-micrometer size-range and up. Within the framework of the Hot Particles Coordinated Research Project (active participants of which were also members of the HAEA) launched by the IAEA in 2001, methods have been developed, implemented, and tested on real samples for single particle re-location, ex-situ micromanipulation and relocation (transfer) between source- and target-instruments.

In the presentation methods for single particles location, re-location, handling and analyses will be discussed. The emphasis will be on the practical implementation of these methods, and the way to self-build a reasonable-cost micromanipulation system.