

LISA conference



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Multi-element ultra-trace detection of radionuclides in environmental samples

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A 'hot particle' is a microscopic fragment deriving from nuclear material. They have been observed in the environment as a result of nuclear accidents such as in Chernobyl and Fukushima, and continue to be a source of contamination. The history of a hot particle is contained in its isotopic composition, characteristic of its origin and interaction with the environment.

Resonant ionization mass spectrometry (RIMS) is a versatile technique that relies on the universality of atomic structure to selectively analyse isotope ratios in a target element. This work demonstrates advances in the SIRIUS RIMS instrument at Leibniz University Hannover for multi-element ultra-trace analysis in nuclear forensics and radioecology.

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