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## Use of Micro-Raman Spectrometry for Nuclear Forensics

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Thanks to its ability to carry out structural identification of small-size objects [1-4], Micro-Raman spectrometry (MRS) is a potentially interesting tool for nuclear forensics. Moreover, although uranium compounds are difficult to analyze by MRS because of intense coloration and fluorescence, laser-induced sample heating, and complexity of the U–O system, specific Raman bands for the major uranium compounds relevant for the nuclear industry were identified by several authors. In this communication, application of Raman spectrometry to the fast and non-destructive determination of the chemical composition of various uranium compounds will be presented and discussed [5]. Analysis by MRS can be carried out to minute amounts of samples and to mixtures of various uranium species. Moreover, MRS can be coupled to a scanning electron microscope (SEM) thanks to a coupling device (“SEM–SCA”, Renishaw Ltd.) [6,7]. This interface was designed to obtain topographical information (by SEM imaging), elemental composition (by EDX), and chemical information (by MRS) from the same spot without sample transfer. Different examples of analysis by means of stand-alone MRS or by in-SEM MRS of relevant samples for nuclear forensics will be shown.

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