Contribution ID: **53** Type: **Oral Presentation**

#11-53 EducTUM - An interactive platform for education and training as well as the maintenance of competence in the non-destructive analysis of radioactive materials from decommissioning and dismantling

Tuesday, June 10, 2025 2:00 PM (20 minutes)

The decommissioning of nuclear facilities poses major challenges for the declaration of the resulting waste. This will be further exacerbated by changes to existing regulations and the introduction of new ones, also with regard to existing (old) waste. As dismantling will continue for decades to come, this requires the long-term maintenance of the relevant specific specialist skills.
This can only be achieved through continuous further and advanced training of the people already involved, while at the same time training the next generation of technical and scientific experts. The general information of the population must not be neglected either.
The EducTUM project, funded by the Federal Ministry of Education and Research (BMBF 15S9443), aims to provide basic and advanced training, maintain skills and impart general information in the fields of radioactive waste characterization and product control. It is aimed at a wide range of people, from those with a general interest in the subject to users and technical experts. The way in which knowledge is imparted therefore depends on the level of knowledge of the individual groups of people.
The starting point for this is the website https:\\educTUM.de. In the first phase of its development, which is currently underway, the focus is on non-destructive metrological investigations of radioactive waste packages and, in particular, on measurement methods that use gamma and X-rays. Other subject areas are to be included in the course of further development.
The subject area of segmented gamma scanning is currently being worked on. The information provided is divided into four user groups according to their qualification: beginners, intermediate, users and experts. For the former two, this is done by means of a logically structured “journey”through the subject area, whereby the individual subject areas are described in a generally understandable way and previous mathematical knowledge is largely dispensed with. The information is conveyed in the form of texts, pictures, animations and short films. The learning process is supported by accompanying questions. Users are taught the necessary basics, which only require simple mathematical knowledge. E.g. for segmented gamma-scanning, this includes a description of the various measurement modes and their areas of application, the basic procedures for carrying out segmented gamma-scan measurements and the evaluation of the data and its complete and traceable documentation. All topics are underpinned with practical examples. Finally, in segmented gamma-scanning, the expert section deals with the mathematical background of various evaluation methods, the application of ISO standards (e.g. DIN EN ISO 19017 or 11929) to the various measurement methods with practical examples. Furthermore, various calculation tools are made available online, which allow in-depth investigations into the individual topics. Examples include the evaluation of segmented gamma-scan measurements on the basis of uncertainty considerations in accordance with DIN EN ISO 11929, the effect of changes in individual parameters on calculated variables, and the performance of what-if analyses. This knowledge can, for example, support the development of new or optimized measurement systems or the development of new evaluation and/or measurement methods.
What all these measures have in common is that they aim to impart and preserve existing knowledge.
In addition, EducTUM offers the opportunity to use professional programs online to deepen the content taught.

This enables a direct link to practice. One example of this is the gamma spectrometry program LVis, which enables online measurements with different detectors on real samples. The samples are located at a measuring station at Radiochemistry Munich RCM of the Technical University of Munich and are regularly exchanged.
The eductum.de website is currently only available in German. A translation into other languages is planned. However, preliminary use in other languages is already possible using the automatic translation functions integrated in modern web browsers.
The aim of the website is to build up and provide the most comprehensive knowledge and application base possible in the respective subject areas. For this reason, the development team is also very interested in input from external persons and groups in order to integrate their know-how and/or take their interests and questions into account in the further development of the website.
The EducTUM project and its specific features, which set it apart from a "normal"Wikipedia webpage, will be presented.

Primary author: BÜCHERL, Thomas (TU Munich)

Co-authors: LIERSE VON GOSTOMSKI, Christoph (TU Munich); NARR, Thomas (TU Munich)

Presenter: BÜCHERL, Thomas (TU Munich)

Session Classification: #11 - Education, Training and Outreach

Track Classification: 11 Education, Training and Outreach