

Title of the course: Nuclear techniques in structural chemistry

Ffen1839

Credits: 2

Coordinator: Vértes, Attila

Department: Department of Analytical Chemistry

Pre-requisites: Basic knowledge in mathematics, physics and chemistry

Topics covered by the course:

- Physical background of Mössbauer spectroscopy (MS).
Experimental techniques of the transmission, reflection and conversion electron MS.
Mössbauer measurements with synchrotron radiation.
- Theoretical aspects of positron annihilation spectroscopy (PAS).
The methods of angular correlation (ACS), Doppler broadening (DBS) and positron- and postironium-lifetime spectroscopies (PLS).
- Description of the phenomena of muon spin-relaxation, -rotation, and -resonance (μ SR) and their applications for structural studies.
The formation of heavy exotic atoms and their interactions with matter as a probe for material science.
- Several applications of the discussed techniques in structural chemistry and material science.

Literature

Compulsory:

- Vértes, I. Kiss: Nuclear Chemistry, Akadémiai Kiadó, Elsevier, 1987
- Vértes, L. Korecz, K. Burger: Mössbauer Spectroscopy, Akadémiai Kiadó, Elsevier, 1979

Suggested::

- Vértes, S. Nagy, Z. Klencsár (editors): Handbook of Nuclear Chemistry, Kluwer Academic Publishers, 2003