



Name of the course:

Course type:

Responsible lecturer:

Content:

Optical characterization of metal surfaces and thin films

Optional

Dr. Péter Petrik

Thin layer physics traditionally has a wide range of tools for the high-sensitivity determination of the material properties of surfaces and thin films. These are mostly suitable for measuring the crystal structure, surface roughness, layer thickness, elemental composition and many other important parameters on the atomic and nanoscale. Within this, optical methods are suitable for process monitoring of interface phenomena. The goal of the course is to learn optical methods for examining surface oxidation, corrosion and other structural changes with nanometer thickness and tenth percentile refractive index sensitivity.

Literature:

- H. Fujiwara, Spectroscopic Ellipsometry: Principles and Applications, 2007. <https://doi.org/10.1002/9780470060193>.
- H.G. Tompkins, J.N. Hilfiker, Spectroscopic ellipsometry: practical application to thin film characterization, Momentum Press, New York, NY, 2016.
- A. Romanenko, E. Agócs, Z. Hózer, P. Petrik, M. Serényi, Concordant element of the oxidation kinetics—Interpretation of ellipsometric measurements on Zr, Applied Surface Science. 573 (2022) 151543. <https://doi.org/10.1016/j.apsusc.2021.151543>.