

# SEMINARIUM RENTGENOWSKIE

Dnia 03.12.2015r. o godz. 10.30, w sali 203 Instytutu Fizyki PAN, odbędzie się seminarium rtg., na którym **dr Fabio Brigidi** z Elettra – Sincrotrone Trieste S.c.p.A, Basovizza (Trieste) Italy, wygłosi referat na temat:

“Modelling of Grazing Incidence X-ray Fluorescence (GIXRF) Analyses”

## Streszczenie:

X-Ray fluorescence (XRF) is a well-established technique for quantitative elemental analysis. For the characterization of thin multi-layered structures and near surface regions, a particular geometrical configuration of the technique can be used, entitled Grazing incidence x-ray fluorescence (GIXRF) [1]. GIXRF returns information about the depth distribution of the elements in an unknown sample, by exploiting the modulations of the electric field amplitude propagating inside the sample that occurs with the variation of the angle of incidence of the incoming X-ray beam.

GIXRF analysis is performed by fitting the simulated signal to the experimental measurement, identically as it is realized for X-Ray Reflectivity (XRR). Simulations are based on physical models and tabulated fundamental parameters. The modelling has to properly describe the expected fluorescence of particular elements given a sample specific structure and has also to include the effects of the experimental set-up.

The modelling strategies implemented in the software GIMPy (acronym for Grazing Incidence Material analyses with Python) designed for the simulation of GIXRF profiles, will be described. The potential of the technique will be demonstrated via application examples dealing with the analyses of doping profiles [2] and thin layered samples [3].

[1] de Boer, D. K. (1991). Physical Review B, 44(2), 498.

[2] Peponi, G., Strelj, C., Wobrauschek, P., Zoeger, N., Luening, K., Pianetta, P. and Bersani, M. (2004). Spectrochimica Acta Part B: Atomic Spectroscopy, 59(8), 1243-1249.

[3] Caby B., Brigidi F., Ingerle D., Nolot E., Peponi G., Strelj C., Lutterotti L., André A., Rodriguez G., Gergaud P., Morales M., Chateigner D. (2015). Spectrochimica Acta Part B, 113, 132-137.

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