Abstract:

This bachelor work follows with the theory of diffusion x-ray scattering from rough multilayers. In the first chapter we will recap some basic principles - statitistic properties of interfaces, Fresnell coefficients, scattering theory, etc. - this stuff we will use to derive the expressions for specular reflection and diffusion scattering from rough interfaces, which we will consider as the random fractals.

We will demonstrate the use of these derived expressions at a measurement on the multilayers coumpounded from SiO_2 and ZrO_2 layers and substrate of mineral glass. Fitting of the measured data on the derived expressions will be done with *Matlab* software. Moreover, we will measure the roughness of interfaces with AFM microscope and we will compare these two measuring metodes.