

# Preparation of Nanostructured Silicon with Optimal Optical Parametres

Shakim, Amelie (School: Nazarbayev Intellectual School of Physics and Math)

The project investigated nanoscale silicon structures obtained by electrochemical and metal-assisted chemical etching methods. Silicon nanostructures were chosen as objects of study because they have a wide range of applications in various fields of science and technology. Micrographs of nanostructures were obtained using optical, scanning electron and scanning tunneling microscopes. Optical properties were studied using a spectrophotometer. According to the results of microscopy, the obtained silicon nanostructures had a thickness of about 1 micron, the diameter of the filaments was about 100-300 nm. The results of spectrophotometry showed that nanoscale silicon structures have a lower reflection coefficient and a large absorption coefficient, which in turn shows the usefulness and importance of the methods used to obtain nanostructures for use in creating high efficiency solar cells.