

# Nanoobjects microscopy

## TUNNELING SPECTROSCOPY AND MORPHOLOGICAL SURFACE FEATURES OF AMORPHOUS ALLOY $\text{Fe}_{82}\text{Si}_4\text{B}_{14}$

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The influence of temperature annealing processes on the surface of the morphological features and the electronic structure of a metal alloy  $\text{Fe}_{82}\text{Si}_4\text{B}_{14}$  in the temperature range - from room temperature (RT) to 700 °C was investigated by methods probe scanning tunneling microscopy and atomic resolution spectroscopy. Low conductivity areas were observed after the relaxation (fig. 1.) of disordered alloy, what is typical for the formation of Fe-Si and Fe-B nanophases.

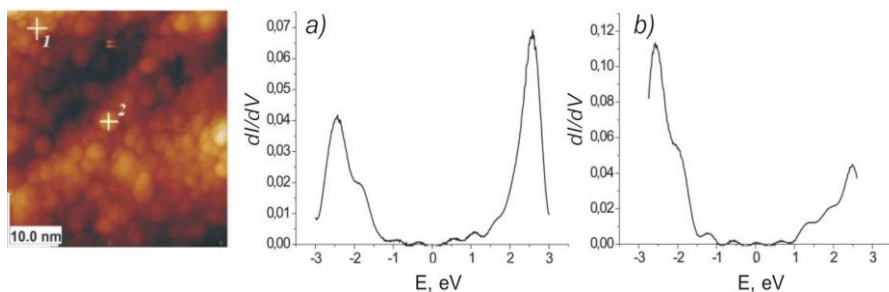


Fig. 1. STM image of the surface and tunneling spectra of AMA  $\text{Fe}_{82}\text{Si}_4\text{B}_{14}$  annealed at 400 °C, *a*)  $dI/dV$  spectrum acquired at the point 1; *b*)  $dI/dV$  spectrum acquired at the point 2

The substantial heterogeneity of the density of electron states at the intercluster boundaries, which indicates their complex organization. Distribution the electron density of states near the Fermi level was obtained. Coagulation of cluster assemblies and, as result, at the formation of nano - and mesoparticles were observed.