Abstract: It is well known that the calcium fluoride (CaF$_2$) can be chosen as the good model matrix. These materials are widely used in the laboratory research and in the industry. As an additional, this material is applied for the biomedicine as well. Here the spectral, mechanical and wetting angle parameters for the carbon nanotubes modified surface of the CaF$_2$ are considered in comparison with that for the pure CaF$_2$ crystals. The laser oriented deposition (LOD) technique and additional electric field varied in the range of 100-600 V/cm are applied to structure the surface of the materials. The experimental results are supported by the quantum-chemical simulation.

Keywords: calcium fluoride; carbon nanotubes; modified surfaces; coatings; laser oriented deposition technique; basic materials parameters; spectra, microhardness; wetting angle