

## EFFECT OF DIELECTRIC COATING OF METAL SURFACE ON ELECTRON WORK FUNCTION

*A.V. Babich, V.V. Pogosov*

Zaporizhzhya National Technical University  
(64, Zhukovsky Str., Zaporizhzhya 60063, Ukraine;  
e-mail: vpogosov@zntu.edu.ua)

### S u m m a r y

In the frame of the Kohn–Sham self-consistent method, we have calculated the electron work function, contact potential difference, and surface stress of the elastically deformed faces of Al, Au, Cu, and Zn crystals with a dielectric coating. The dielectric coating decreases the work function and increases the contact potential difference. The calculations showed the opposite behaviors of the work function of electrons and the contact potential difference under deformation. It is shown that the measurements of the contact potential difference of a deformed face by the Kelvin method correspond to a variation of the one-electron effective potential on the plane of the virtual image behind the surface, rather than to a change of the electron work function. The calculated quantities are in agreement with the results of both experiments for polycrystals and first-principles calculations.