

On the problem of thermodynamic stability of the liquid neck between two solid spherical metal nanoparticles

© Nickolay Yu. Sdobnyakov, Denis N. Sokolov, Denis A. Kulpin, Anatolii N. Bazulev, Vladimir M. Samsonov, and Elena A. Tsvetkova

Tver State University. Sadovii per. St., 35. Tver, 170002. Russia.

Phone: +7 (4822) 58-53-43. E-mail: nsdobnyakov@mail.ru

*Supervising author; [†]Corresponding author

Keywords: *thermodynamic perturbation theory, specific excess free energy, liquid neck, disjoining pressure.*

Abstract

On the basis of thermodynamic perturbation theory the calculation of the specific excess free energy and disjoining pressure of liquid neck between two spherical nanoparticles have been made. Stability of liquid neck has been analyzed by isotherms of disjoining pressure.