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MODELING OF THE DEPENDENCE OF THE CONDUCTIVITY OF THE NON-ELECTRIC MEDIUM OF IRON METAL

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Abstract:
In this paper, the potential-conductance dependence is numerically modeled in the boundary of a ferrous non-electric medium.

Keywords: interfacial energy, electron-statistical method, polarization correction, dispersion interaction, alkali metals, dielectric medium.

The processes occurring at the interface of ferrous metals with non-electrical medium are widely used in various devices.
The properties of the Iron-Metal interface enable the creation of materials with practical utility properties used in catalysis, energy storage, electronics, gas storage and separation, magnetism, nonlinear optics, and more.
Knowing the direction of the potential at the interface of the phases, it is possible to obtain the interfacial properties, including the interfacial energy. In this paper, the potential-conductivity dependence is numerically modeled in the framework of a modified version of the
Frenkel-Gambosch-Zadumkin electron-statistical theory in the limit of a ferrous metallic
non-electric medium.
The course of the dimensionless potential at the interface is obtained, and it is shown that the greater the conductivity of the medium in the absence of electricity, the greater the dimensionless potential drop at the physical interface.
Metal–organic frameworks (MOFs) constitute an emerging class of materials useful in gas storage, gas purification and separation applications as well as heterogeneous catalysis. They not only offer higher surface areas and the potential for enhanced activity than currently used materials like base metal oxides, but also provide shape/size selectivity which is important both for separations and catalysis. The

coordinate of the Gibbs interface is obtained for the Iron Metal non-electric medium system, which can be found from the state of electron neutrality in this boundary. It is shown that the Gibbs coordinate increases with the increase of the conductivity value, that is, it shifts towards the medium without electric current.

The dependence of the interfacial energies of surfaces with different structures on the conductivity in a non-electric medium is shown.

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