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HELVETICA PHYSICA ACTA

Zusammenfassungen der letzten eingegangenen Arbeiten
Résumés des derniers articles reçus

On the Anomalous Skin Effect in Metals
Part 1: Normal Conductors

by K. E. DRANGEID and R. SOMMERHALDER
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(23. IV. 75)

Abstract. A study of an analog network model is presented which results in finding a set of differential equations describing transport phenomena in metals such as: a) dc size effects in thin films; b) ac impedance of bulk material in the microwave range; c) bulk absorption up to the optical range, in terms of coupled ordinary waves. Solutions are in very close agreement with experimental evidence.

The model further generates an expression for the reciprocal surface impedance which is well suited as a response function in connection with the Kramers–Kronig relations.

Comparaison de Trois Modeles pour la Diffusion Quasi-Libre *n–n*

par F. FOROUGHI et E. BOVET
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(28. IV. 75)

Abstract. We compare, for *n–n* quasi-free scattering, the results obtained with three models; Ebenhöh's code, the impulse approximation and the residue of the breakup amplitude corresponding to the deuterium bound state.

On the Statistical Mechanics of One-Dimensional Coulomb Systems

by PHILIPPE CHOQUARD
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(26. V. 75)

Abstract. The method of functional integration is applied to classical one-dimensional Coulomb systems. The eigenvalues of the interaction matrix are given explicitly. One (and only one) negative eigenvalue is found as required by a theorem established by Kac. This feature is expressed in a modified Kac–Siegert inversion formula and in an appropriate representation of the Grand Partition Function of a multi-component system in a box. The one-component system (the jellium) is studied next. A new generating function is obtained for this model and a brief comparative analysis is made between its transfer matrix, diffusion equations and euclidean field theory formulations. This is effected with a view to investigating the occurrence of uni-axial periodic density oscillations in the two- and three-dimensional versions of the jellium model. Correlation functions and thermodynamic limits are not dealt with in this paper.

Zur Struktur von KO_2 in der Phase IV

von M. ZIEGLER, H. R. MEISTER und W. KÄNZIG

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(29. V. 75)

Abstract. By means of x-ray diffraction by single crystals we studied the structure of phase IV ($12\ K < T < 196\ K$) of KO_2.

At room temperature the average structure of KO_2 is known to be the CaC_2 structure. In this phase the O^- molecules undergo a hindered precession about the tetragonal axis.

With decreasing temperature the hindered rotation gradually freezes in via an intermediate phase with an incommensurate correlation and at 196 K the O^- molecules order in such a way that the original tetragonal unit cell is sheared and doubled to become monoclinic.

It was possible to separate the reflections due to the different domains and thus to determine the structure.