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ABSTRACTS FROM EAST EUROPEAN
SCIENTIFIC AND TECHNICAL JOURNALS

No. 124

(General Series)



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ABSTRACTS FROM EAST EUROPEAN
SCIENTIFIC AND TECHNICAL JOURNALS

No. 124

- General Series -

This report consists of abstracts of articles from the East European scientific and technical journal listed in the table of contents below.

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EAST GERMANY

Monatsberichte der Deutschen Akademie der Wissenschaften
zu Berlin, Berlin, Vol 5, No 2, 63

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EAST GERMANY

THEESSEN, P.A., MEYER, K., and POLLY, W., of the Institute for Physical Chemistry at the German Academy of Sciences (Institut für Physikalische Chemie der Deutschen Akademie der Wissenschaften) [location not given].

"Luminescence Caused by Single Mechanical Impulses on the Surface of Solids"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, pp. 65-68.

Abstract: Light sparks, observed on the surface of insulators, semiconductors, and metallic conductors in the course of mechanical fabrication, were investigated. The luminescence caused by single impacts was verified by means of a system consisting of a photomultiplier, an amplifier, and a recording oscillograph. Three oscillograms were shown. The phenomenon can not be explained satisfactorily by the theories on triboluminescence. Seven references, including 6 German and 1 Western.

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EAST GERMANY

SCHULZE, G.E.R., and WERNCKE, U., of the Institute for X-ray Science and Physics of Metals at the Technical University (Institut für Röntgenkunde und Metallphysik der Technischen Universität) in Dresden.

"Vapor Pressure Curve and Evaporation Heat of CaZn_2 "

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, p. 68.

Abstract: The vapor pressure of zinc over CaZn_2 and the heat of evaporation for the latter compound was determined by calculation and from experimental data. From the results the vapor pressure curve was computed on the basis of the lowest squares. These curves were compared to those published in the literature. Three references, including 2 German and 1 Western.

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EAST GERMANY

ERTEL, H., of the Institute for Physical Hydrography at the German Academy of Sciences (Institut für Physikalische Hydrographie der Deutschen Akademie der Wissenschaften) [location not given].

"Level-Oscillations in a Bifurcation"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, pp. 69-72.

Abstract: A model was developed to simulate the oscillations occurring in a bifurcation connecting two streams with variable water supply. These oscillations of the level were analytically studied by an approximation procedure. The differential equations characterizing the phenomena involved were developed and solved; the solution was subjected to a wave-kinetical transformation. Twelve references, including 8 German and 4 Western.

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EAST GERMANY

NORDHEIM, W., and MULLER, G., of the Institute for Cell Physiology at the German Academy of Sciences (Institut für Zellphysiologie der Deutschen Akademie der Wissenschaften) [location not given].

"Aerobic and Anerobic Ethyl Alcohol Formation in Grains and the Effect of 2,4-Dinitrophenol"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, pp. 73-75.

Abstract: The amounts of ethyl alcohol formed in winter wheat, oats, barley, and rye in the course of 24 hours under aerobic and anaerobic conditions and with various amounts of 2,4-dinitrophenol added were determined enzymatically. The 'decoupling' effect of the chemical, resulting in increased alcohol formation and previously observed in grain embryos under anaerobic conditions, was now verified for mature grains under aerobic conditions. Eleven references, including 5 German, 1 Russian, and 5 Western.

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EAST GERMANY

MULLER, A.H., of the Institute for Geology at the Mining Academy (Geologisches Institut der Bergakademie) in Freiberg.

"Dinosaur Eggs from the Upper Crete (Dan) Zone in France and Their Electron Microscopical Structure"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, pp. 75-87.

Abstract: The dinosaur eggs originating from the Upper Crete (Dan) Zone in Southern France were examined ultramicroscopically. Pathological phenomena were observed and these were described and illustrated by means of ultramicrographs. The faunal cross-section of the zone was discussed for the Crete-Tertiary boundary. Seventeen references, including 4 German and 13 Western.

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EAST GERMANY

PORNIUS, H.J., and REPKE, K., of the Institutes for Medicine and Biology; Biochemical Institute, at the German Academy of Sciences (Institute für Medizin und Biologie, Institut für Biochemie, der Deutschen Akademie der Wissenschaften) [location not given].

"Experiments to Characterize a Transport AT-Pase for Sodium and Potassium Ions in the Cell Membrane of the Heart Muscle"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, pp. 88-90.

Abstract: The published literature was briefly reviewed. The data from these and experimental investigations lead to the conclusion that the phosphositides function as phosphate acceptors and as prosthetic groups in an AT-pase during the transport of monovalent cations through the membrane. The presence of at least two enzymes is indicated. Thirteen references, including 4 German, 1 Czechoslovakian, and 8 Western.

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EAST GERMANY

REPKE, K., and PORTIUS, H.J., of the Institutes for Medicine and Biology; Biochemical Institute, at the German Academy of Sciences (Institute für Medizin und Biologie, Institut für Biochemie, der Deutschen Akademie der Wissenschaften) [location not given].

"The Effects of Various Cardiotonic Compounds on the Transport AT-Pase in the Cell Membrane of the Heart Muscle"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, pp. 90-92.

Abstract: The AT-Pase activated by the ions of sodium, potassium, or magnesium (Transport AT-Pase) of the cell membrane in the heart muscle was influenced by various cardiotonic compounds. Experiments conducted with these compounds were evaluated and compared with reports published in the literature. Twenty-three references, including 18 German and 5 Western.

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EAST GERMANY

FREYTAG, E., of the Institute for Optics and Spectroscopy at the German Academy of Sciences (Institut für Optik und Spektroskopie der Deutschen Akademie der Wissenschaften) [location not given].

"Ultraviolet Absorption Measurements in Vacuo on Discolored Lithium Fluoride Crystals"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, p. 93.

Abstract: Lithium fluoride crystals were irradiated with X-rays for several hours at the temperature of liquid air and their absorption was determined prior to and following the irradiation. The differences between the two sets of results were compared to defective electron centers discovered by means of paramagnetic resonance measurements at low temperatures. A detailed version of this brief paper is scheduled for publication in Experimentelle Technik der Physik. Six references, including 2 Japanese and 4 Western.

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EAST GERMANY

WAGNER, H., and GENGNAGEL, H., of the Physical Section, Metal--Physical Subsection, of the German Academy of Sciences (Unterkommission Metall-Physik der Sektion für Physik der Deutschen Akademie der Wissenschaften) in Berlin.

"Induced Anisotropy in Iron-Aluminum Alloys at Elevated Temperatures"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, pp. 94-98.

Abstract: A thermal analysis of the high temperature-induced anisotropy in iron-aluminum alloys indicated that zones of differential magnetization develop in the 12-16 weight-percent aluminum concentration range at a narrow temperature range. These zones are instrumental in the well known increase in the coercive forces of these alloys at elevated temperatures. Eight references, including 2 Japanese and 6 Western.

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EAST GERMANY

KLEINERT, P., of the Physical Section, Metal-Physical Subsection, at the German Academy of Sciences (Unterkommission Metallphysik der Sektion für Physik der Deutschen Akademie der Wissenschaften) in Berlin.

"Investigation of Spinell Formation in a Mixture of Nickel Oxide and alpha-Ferric Oxide by Means of Differential Thermal Analysis"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, pp. 99-105.

Abstract: Differential thermal analysis diagrams were prepared on the reaction of nickel oxide with alpha-ferric oxide, using pressed, cast, and ground and compressed samples of each, respectively. Exothermic maxima were observed when the samples were sintered at specific temperatures prior to the reaction. These were attributed to the defective structure of the nickel oxide and to the large surface energy of the iron oxide. Fourteen references, including 4 German, 1 Hungarian, 1 Russian, and 0 Western.

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EAST GERMANY

SCHROEDER, H., of the Physical Section, Metal-Physical Subsection, at the German Academy of Sciences (Unterkommission Metallphysik der Sektion fur Physik der Deutschen Akademie der Wissenschaften) in Berlin.

"Magnetic Oxide Layers"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, pp. 105-109.

Abstract: Conditions under which magnetic oxide layers of a given composition and structure form during reactive pulverization in oxygen were studied. Pulverization was conducted in a cathode-stomizer. By using an argon atmosphere containing approximately 3 tenth of one percent oxygen by volume, brown oxide layers formed which, upon examination under the electron microscope, were found to be homogeneous and structureless. Brown iron oxide, essentially identical also formed in oxygen concentrations up to 10 volume-%.
1/1 Three references, including 1 German and 2 Western.

EAST GERMANY

PERTHEL, R., and KEILIG, W., of the Physical Section, Metal-Physical Subsection, at the German Academy of Sciences (Unterkommission Metallphysik der Sektion fur Physik der Deutschen Akademie der Wissenschaften) in Berlin.

"Crystal Anisotropy in Cobalt-Ferrite Crystals"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, pp. 109-112.

Abstract: The anisotropy manifests itself by different amounts of magnetic field strength required to saturate the crystals in the various principal directions. Single crystals, prepared by the Verneuil process from mixtures containing cobalt and iron in a 1:2 ratio were prepared and studied. The experiments were affected by the great incidence of imperfect crystal formation; however, the anisotropy was clearly evident even under these adverse conditions. Six references to Western publications.

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EAST GERMANY

VOIGT, F., of the Physical Section, Metal-Physical Subsection, at the German Academy of Sciences (Unterkommission Metallphysik der Sektion für Physik der Deutschen Akademie der Wissenschaften) in Berlin.

"Effects of Tempering in a Rotating Field and of Rapid Cooling on the Dispersion of Complex Permeability in Nickel-Zinc-Cobalt Ferrite"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, pp. 112-117.

Abstract: The frequency-dependence of the complex permeability in ferrites of the general composition $(1-x/40)(24 \text{ NiO} \cdot 16 \text{ ZnO} \cdot x \text{ CoO} \cdot 60 \text{ Fe}_2\text{O}_3)$ is appreciably influenced by the temperature of the heat treatment. The resonant frequency of samples cooled in a non-magnetic field depends strongly on the CoO content; while that cooled in a rotating magnetic field is less influenced. These phenomena were explained on the basis of wall stability. Tempering in a rotating field induces anisotropy. Four references, including 1 German, 1 Russian, and 2 Western.

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EAST GERMANY

VOGLER, G., of the Physical Section, Metal-Physical Subsection at the German Academy of Sciences (Unterkommission Metallphysik der Sektion für Physik der Deutschen Akademie der Wissenschaften) in Berlin.

"Notes on the Study of Rectangular [hysteresis] Ferrites"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, pp. 117-120.

Abstract: To determine whether the quasi-static performance of two different nuclei is reflected in their respective dynamic performance, the effective disturbing current ratios were measured in relation to field strength. Nuclei with rounded-corner hysteresis squares clearly showed inferior performance than those with sharp-cornered squares. Differences were also found in the respective demagnetization processes of the two samples. No references.

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EAST GERMANY

ANDRA, W., and KLEINERT, P., of the Physical Section, Metal-Physical Subsection, at the German Academy of Sciences (Unterkommission Metallphysik der Sektion für Physik der Deutschen Akademie der Wissenschaften) in Berlin.

"Induced Magnetic Anisotropy in Thin Nickel Layers"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, pp. 121-124.

Abstract: Thin nickel layers were prepared by reducing nickel in solution with sodium hypophosphite onto pure copper substrate in a magnetic field. The magnetic properties of the nickel layers, especially their magnetic anisotropy, were determined and compared with layers prepared by chemical precipitation. The latter had no anisotropy. Fourteen references, including 5 German, 1 Russian, 2 Japanese, and 6 Western.

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EAST GERMANY

KLUFSCH, Th., of the Physical Section, Metal-Physical Subsection, at the German Academy of Sciences (Unterkommission Metallphysik der Sektion für Physik der Deutschen Akademie der Wissenschaften) in Berlin.

"The Effect of the Isolated Uniform Precession Mode on the Nonlinearity in the Principal Resonance of Single-Crystal Ferrite Spheres"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, pp. 125-128.

Abstract: The effects of the isolated (interaction-free) uniform precession mode were mathematically analyzed on the basis of a model by employing the Landau-Lifshitz equation. The results showed good correlation with experimental findings; however, the mechanism of the phenomena involved are not clearly understood at this date. Six references, including 3 German and 3 Western.

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EAST GERMANY

DAMERAU, W., LASSMANN, G., and THOM, H.-G., of the Institutes for Medicine and Biology; Institute for Biophysics, at the German Academy of Sciences (Institute für Medizin und Biologie, Institut für Biophysik, der Deutschen Akademie der Wissenschaften) [location not given].

"Tritium Substitution in Electron Spin Resonance Investigations"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, pp. 128-129.

Abstract: To eliminate the effects caused by the glass sample containers, radiation-induced radicals were measured directly by means of tritium-substituted compounds. Owing to the low range of the beta-rays (one micron in glass), the interference is thus eliminated. The spectrum shows no change from that obtained by the conventional method since the nuclear spin is the same in tritium as in hydrogen. Tritium-substituted aminoacids and metalloorganic compounds will be investigated by the proposed method. One reference
1/1 to a Western publication.

EAST GERMANY

HERSMANN, K., MÜLLER, P., and TELFOW, J., of the Institute for Crystal Physics at the German Academy of Sciences (Institut für Kristall-Physik der Deutschen Akademie der Wissenschaften) [location not given].

"Starting Reaction and Defective Electron Conductivity of Silver Bromide and Silver Chloride Doped with Chalcogenides"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, p. 129.

Abstract: The starting reaction of silver bromide with very small indicator (silver selenide and silver telluride) additives was investigated in a bromine atmosphere at various temperatures. A detailed version of this brief note is scheduled for publication in Physica Status Solidi. No references.

1/1

EAST GERMANY

ZIDNERMANN, H., of the Institute for Fiber Research at the German Academy of Sciences (Institut für Faserstoff-Forschung der Deutschen Akademie der Wissenschaften) [location not given].

"Thermal Stabilization of Polyethylene Terephthalate"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, pp. 130-131.

Abstract: This article is a summary of the paper published in Faserforschung und Textiltechnik, Vol 13, 1962, pp. 481-490.
No references.

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EAST GERMANY

SAGHOMSKY, H., of the Institute for Industrial Plants Research at the German Academy of Sciences (Institut für Kulturpflanzenforschung der Deutschen Akademie der Wissenschaften) in Gatersleben.

"The Effects of Light on the Formation of Air Roots in Cereus"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, pp. 131-134.

Abstract: It was observed that shoots of *Cereus nycticalus* will form air-roots at a much higher rate in the dark than under illumination. This effect was tentatively attributed to the photosensitizing of the chlorophyll by the red component in the light to which the shoots were exposed. A detailed version of this paper appeared in Veröffentlichungen des Geobotanischen Instituts Rubel (Zurich, Switzerland) Vol. 37, 1962, pp. 197-206. Six references to German publications.

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EAST GERMANY

MACKO, J.K., and ODENING, K., of the Institute for Helminthology at the Slovakian Academy of Sciences; Czechoslovakian Academy of Sciences [original-language version not given] in Kosice and Zoological Research Station of the Berlin zoo; German Academy of Sciences (Zoologische Forschungsstelle im Berliner Tierpark der Deutschen Akademie der Wissenschaften) in Berlin.

"Data on Echinoparyphium Recurvatum (von Linstow, 1873?) from Rallus Aquaticus L."

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, pp. 134-135.

Abstract: Echinoparyphium recurvatum (von Linstow, 1873?), obtained from Rallus aquaticus L., was investigated. This article is a brief summary of the paper scheduled for publication in Studia Helminthologica II. (Czechoslovakia). No references.

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EAST GERMANY

MEGGER, R., and REPKE, K., of the Institutes for Medicine and Biology; Institute for Biochemistry, at the German Academy of Sciences (Institute für Medizin und Biologie, Institut für Biochemie der Deutschen Akademie der Wissenschaften) [location not given].

"Limiting Factors for the Effectiveness of Orally-Administered Cardiotonic Steroids"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, pp. 136-139.

Abstract: On the basis of tests conducted on rats it was recommended to transform gitoxine, a byproduct in digitoxine manufacture, by acetylation into a derivative which is an efficient cardiotonic substance and suitable for oral administration. Pentaacetyl-gitoxine was the most effective of the acetylation products. Nine references, including 7 German and 2 Western.

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EAST GERMANY

HERRMANN, I., and REPKE, K., of the Institutes for Medicine and Biology; Institute for Biochemistry, at the German Academy of Sciences (Institute für Medizin und Biologie, Institut für Biochemie, der Deutschen Akademie der Wissenschaften) [location not given].

"Biological Transformation of Digitoxine and Digitoxigenine in the Human Liver"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, pp. 140-143.

Abstract: Digitoxine can be detoxified in human liver tissue only after splitting of the digitoxose chain and the decomposition of the aglucon proceeds at a very slow rate. Digitoxigenine, however, decomposes rapidly through epimerization and/or conjugation with sulfuric acid. Differences in the duration of the effect of the glucoside and the aglucon, respectively, are attributed to differences in the detoxification rates. The biological transformation of cardiotonic steroids is the same in humans as in animals. Eight references, including 5 German and 3 Western.

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EAST GERMANY

SMOLLICH, A., of the Institute for Comparative Pathology at the German Academy of Sciences (Institut für Vergleichende Pathologie der Deutschen Akademie der Wissenschaften) [location not given].

"On the Sexual Dimorphism of the Suprarenal Gland in *Myocastor Coypus* (MOLINA)"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, pp. 143-144.

Abstract: The suprarenal glands of *Myocastor coypus* (MOLINA) show weight and morphological differences in male and female individuals, respectively. These differences become more pronounced with advancing age. This article is a brief summary of a paper scheduled for publication in Acta Anatomica (Basle, Switzerland). No references.

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EAST GERMANY

SMOLLICH, A., of the Institute for Comparative Pathology at the German Academy of Sciences (Institut für Vergleichende Pathologie der Deutschen Akademie der Wissenschaften) [location not given].

"On the Morphology and Genesis of the So-Called Dark Cells in the Suprarenal Gland Sheath of *Myocastor Coypus* (MOLINA)"

Berlin, Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Vol 5, No 2, 1963, p. 144.

Abstract: This article is a brief summary of the paper published in Zeitschrift für Zellforschung, Vol 58, 1962, pp. 94-106. No references.

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