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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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Monatsberichte der Deutschen Akademie der Wissenschaften zu Berlin, Berlin, Vol 5, No 2, 53

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THIessen, P.A., MAYER, 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"


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 cannot be explained satisfactorily by the theories on triboluminescence. Seven references, including 6 German and 1 Western.

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"Vapor Pressure Curve and Evaporation Heat of CaZn2"


Abstract: The vapor pressure of zinc over CaZn2 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. Three curves were compared to those published in the literature. Three references, including 2 German and 1 Western.
ENTEL, H., of the Institute for Physical Hydrography at the German Academy of Sciences (Institut fur Physikalische Hydrographie der Deutschen Akademie der Wissenschaften) [location not given].

"Level-Oscillations in a Bifurcation"


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

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


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.
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"


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

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


Abstract: The published literature was briefly reviewed. The data from these and experimental investigations lead to the conclusion that the phosphinositides function as phosphate acceptors and as prosthetic groups in an ATPase 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

REIKE, K., and PORTIUS, R., of the Institutes for Medicine and Biology; Biochemical Institute, at the German Academy of Sciences (Institute fur Medizin und Biologie, Institut fur 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"


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.

EAST GERMANY

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

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


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.
WAGNER, H., and GENNAGEL, 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"


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.

KLEINEIFT, 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"


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 8 Western.
EAST GERMANY

SCHRODER, 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"


Abstract: Conditions under which magnetic oxide layers of a given composition and structure form during reactive pulverisation in oxygen were studied. Pulverisation was conducted in a cathode-stomatiser. 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

PERRIEL, 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"


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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Abstract: The frequency-dependence of the complex permeability in ferrites of the general composition \( (1-\nu)(24 \text{ NiO.16 ZnO.13 CoO.06 Fe}_2\text{O}_3) \) 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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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.

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.
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 (Institut für Medizin und Biologie, Institut für Biophysik, der Deutschen Akademie der Wissenschaften) [location not given].

"Tritium Substitution in Electron Spin Resonance Investigations"


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 aminocids and metalloorganic compounds will be investigated by the proposed method. One reference to a Western publication.

EAST GERMANY

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

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


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.
ZIEGMANN, K., 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 Stabilisation of Polyethylene Terephthalate"


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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ZAGORSKY, K., 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"


Abstract: It was observed that shoots of Cereus nycticus 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 Institutes Hubel (Zurich, Switzerland) Vol. 37, 1962, pp. 197-206. Six references to German publications.
EAST GERMANY

HACKO, 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 Forschungsgstelle im Berliner Tierpark der Deutschen Akademie der Wissenschaften) in Berlin.

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


Abstract: Schinoparyphium recurratum (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

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

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


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


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


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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SMILLIE, 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)"


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