and all other quantities in curly brackets form a single "package".

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*In equation (5), $F_k^{(\xi)} = F_k^{(\xi)}(\xi_1 \ldots \gamma_1 | \sigma\,')$ for $K=1$, . . . 7, and $F_8^{(\xi)} = F_8^{(\xi)}(\xi_1 \ldots y_i | \sigma)$.

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Concerning the Letter to the Editor by V. A. Krasnokutskii "Light from Aluminum Melts in an Electrolytic Bath"

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IN the above mentioned letter to the editor[1], V. A. Kranokutskii discusses an interesting light effect observed during electrolytic oxidation of aluminum or of aluminum melts. However, the author erroneously states that this phenomenon was first discovered by him. Light emission from aluminum electrodes accompanying the formation of oxidation film in electrolytic solutions has been known for several decades, and is described in many monographs devoted to the technical application of anode oxidation of aluminum[2,3]. In addition, Dufford[4] investigated the light emission under discussion in the same electrolytes used by Krasnokutskii and partially obtained similar results. Krasnokutskiis' statement that light emission is not observed in oxide solutions is applicable only to certain acids, while considerable light emission is observed in H_3PO_4 and in different organic acids[4-6]. The influence of different impurities in the aluminum melt on the spectrum of the light was the subject of detail investigations by Guminski[6].

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Paramagnetic Resonance in Alkali Metals

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PARAMAGNETIC absorption resonance due to electron conductivity in metals has been studied by a number of authors[1-4]. We have investigated the dependence of the width of the electron resonance absorption curve on the particle size of metallic lithium containing about 5% impurities of different metals. Measurements were made at frequencies of the oscillating magnetic field of 9350, 400, 225 91 and 35 mcs/s using samples in which the average particle size of lithium varied within wide limits. The method of investigation was described in an earlier work[4].

It was found that the width ΔH of the absorption resonance curve in metallic lithium at room temperature gradually decreases from 20 to 3 Oe with the decrease of the average metal particle size from ~ 50 to $\sim 0.1\mu$.

The width of the curve and the intensity of absorption in samples of lithium with average particle size $\sim 0.1\mu$ remain constant in the frequency range from 9500 to 35 mcs/s and at temperatures from 300 to 90°K. In samples of lithium with larger average size particles the width of the curve also does not depend on the frequency or temperature*, only a distortion in the form of the absorption resonance curve is observed[3,6] which depends on the ratio of the particle size to the depth of the skin layer (see Fig.).
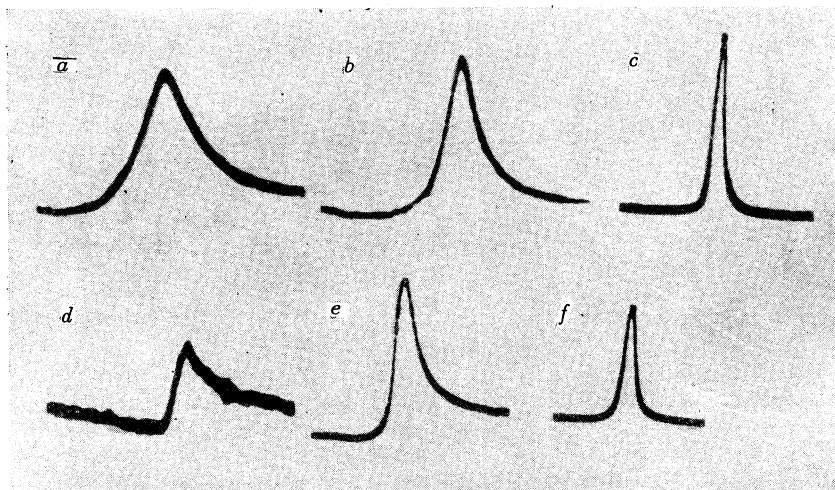
It was successfully shown at the 35 mcs/s frequency that lattice spin relaxation time is increasing with decrease of particle size.

The g-factor value was determined in samples of average particle size of 0.1μ at a 9500 mcs. The value was $g = 2.002 + 0.002$.

In the sodium sample of average particle size 0.1μ and containing 5% impurities, the absorption resonance curve at room temperature has $\Delta H = 110$ Oe, $g = 2.002$ at all investigated frequencies. The

temperature dependence of the width ΔH in this sample is in good agreement with the data in Refs. 2 and 3.

We have not succeeded in trying to detect paramagnetic resonance in the potassium metal sample.

Temperature $300°K$; a, b, c 225 mcs/sec; d, e, f — 9500 mcs/sec; size of lithium particles $a \sim 50$; $b \sim 30$; $c \sim 0.1$; $a \sim 30$; $e \sim 5$; $f \sim 0.1$ μ

* There was observed a widening of the absorption curves in all lithium samples at $T = 463°K$.

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Translated by J. L. Herson
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Energy Spectrum of Cascade Photons in Light Substances

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J. Exptl. Theoret. Phys. (U.S.S.R.) **32**, 150-151
(January, 1957)

BY the method of moments[1-8], it was possible to obtain a fairly complete description of a unidimensional development of an electron-photon cascade shower in light and heavy substances. The method is based on the calculation (with the aid of recurrence formulas) of the moment along the depth t by the distribution function $N(E_0, E^0, t,$ of the number of particles in the shower having energies higher than E^0, in a shower initiated by a primary particle of energy E_0^2.

In Ref. 3, a method was developed for the calculation of the energy spectra of cascade electrons, employing the system of polynomials, orthogonal in the interval $(0, \infty)$. In the present work, a similar method was used for the calculation of the energy spectrum of cascade photons in light substances. The results of the calculation of the number of photons $[N(E_0, E^0, t)]^{p, \Gamma}$ in a shower initiated by a primary electron or a photon in air for certain values of E_0, E^0 and t are given in Tables 1 and 2.

The accuracy of the method of calculation used was investigated in Refs. 3, 5 and 6. In addition, the values of the approximation curves agree, within the limits of 10%, with the values calculated by exact theoretical formulas at $E_0/\beta \gg 1$, where β is the critical energy for a given substance. The energy spectrum at the maximum of the curves is within the limit of 10 or less percent, in agreement with the "equilibrium" spectrum. Therefore, the calculated curves describe the real cascade process with an error of not more than 10 percent.