THE GAMMA RAYS OF As^{74}

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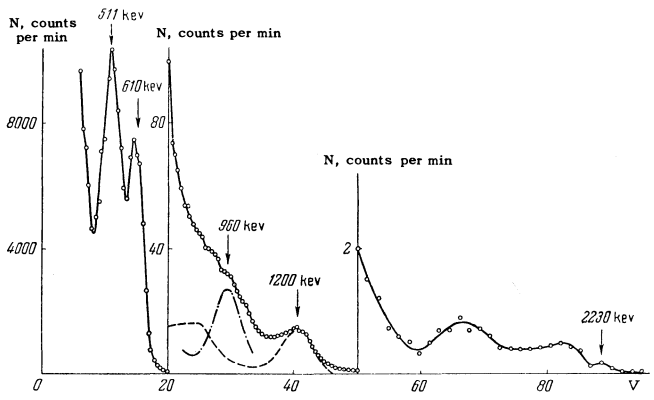
WE have studied the γ-ray spectrum of As^{74} by means of a single-channel scintillation γ-ray spectrometer, using a NaI(Ta) crystal with a type FEU-S photomultiplier. The efficiency curve of the γ-ray spectrometer was obtained by taking measurements with it on standards giving known numbers of disintegrations.

The energies and relative intensities of the lines observed in the γ-ray spectrum are given below,



Gamma-ray spectrum of As^{74}, taken with a scintillation γ-ray spectrometer. The dashed curves show the resolution of a section of the spectrum into components.

together with the results of the latest two papers on this spectrum:

Present work		Grigor'ev et al.[1]		Horen and Wells[2]
$h\nu$, kev	Relative intensity	$h\nu$, kev	Relative intensity	$h\nu$, kev
610 ± 30	1	635	1	—
960 ± 50	0.015 ± 0.008	—	—	—
1200 ± 30	0.023 ± 0.008	1190	$0.018\pm0,005$	1190 ± 10
—	—	—	—	1600 ± 40
2230 ± 70	$\sim10^{-4}$	>1190	<0.004	2220 ± 20

The work of Grigor'ev et al.[1] was done earlier than ours; we received the brief communication of Horen and Wells after the completion of our measurements.

The existence of γ-ray lines of energies of 1190 and 2220 kev can evidently be regarded as established; the other two lines, at 960 and 1600 kev, still need further investigation.

[1] Grigor'ev, Dzhelepov, Zolotavin, Mishin, Prikhodtseva, Khol'nov, and Shchukin, Izv. AN SSSR, Ser. Fiz. 22, 831 (1958), Columbia Tech. Transl. in press.

[2] D. J. Horen and D. O. Wells, Bull. Am. Phys. Soc., Ser. II, **3**, 315 (1958).

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ULTRASONIC ATTENUATION IN METALS

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THE attenuation of ultrasonic waves in metals at low temperatures is determined by the electron-phonon interaction. The absorption coefficient, γ, has been calculated by Pippard,[1] and Steinberg[2] has examined the corresponding change in the velocity of sound. Bömmel[3] measured the attenuation in the presence of an external magnetic field and found that γ did not vary monotonically with H. This effect was explained by Pippard[4] as a type of cyclotron resonance. Steinberg[5] carried out the calculation for transverse waves in a longitudinal magnetic field and concluded that resonance absorption does not occur in this case. Here we examine the attenuation of transverse waves in metals in a transverse magnetic field.

We regard the motion of the atoms of the lattice as given and consider the electrons to be free. We are interested in the case when $l \gtrsim \lambda$, $R \sim \lambda$. Here λ is the wavelength of the sound waves and l is their mean free path. $R = mvc/eH$, is the