At that, the core is characterized by a small size $a \approx \hbar/Mc \ll \hbar/\mu_\pi c$.

*Our values for $\rho_\pi(r)$ are substantially different from those of reference 2; however, as was shown in reference 3, the results in reference 2 are in error.


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## *RESONANT SCATTERING OF GAMMA RAYS BY* Ni[60]


N. A. BURGOV, Yu. V. TEREKHOV, and G. E. BIZINA

Institute of Theoretical and Experimental Physics, Academy of Sciences, U.S.S.R.



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WE observed the effect of resonant scattering of gamma rays by $Ni^{60}$ nuclei by a procedure described by us earlier.[1,2] We used a gaseous $CoCl_2$ source. The gamma rays were detected with scintillation counters consisting of organic tolane crystals and FEU-33 photomultipliers. We recorded coincidences between the emitted cascade gamma quanta. The resolution of the coincident circuit was $2 \times 10^{-9}$ sec.

Nickel and cobalt scatterers were placed alternately in front of one of the detectors. Within the $\gamma$-quanta emission-angle interval $180° > \varphi > 126°$ we observed for the nickel specimen an additional absorption of the 133-Mev gamma rays, the absorption being due to resonant scattering. No additional absorption was observed in the cobalt specimen.

We list the experimentally-determined cross sections (in $cm^2$) of resonant scattering for various angles $\varphi$:

| $\varphi$ | 180° | 150° | 90° |
|---|---|---|---|
| $10^{25}\sigma_r =$ | $3.9 \pm 1.2$ | $1.7 \pm 1.5$ | $0 \pm 1.2$ |

These values agree, within the limits of error, with the $\sigma_r$ vs. $\varphi$ curve which we computed theoretically.[3]

The lifetime of the first excited level of $Ni^{60}$ was found to be $\tau = (1.0 \pm 0.3) \times 10^{-13}$ sec (molecular bonds were taken into account in the calculations). This result is in good agreement with that of Metzger,[4] $\tau = (1.1 \pm 0.2) \times 10^{-12}$ sec, and agrees within the limits of error with the result of Alkhazov, Lemberg, et al.[5] obtained by the Coulomb excitation method, $\tau = 5.7 \times 10^{-13}$ sec with a 30% error.


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## *CERTAIN GAMMA TRANSITIONS IN* I[128] *AND IN NEODYMIUM ISOTOPES*


L. F. KALINKIN, A. S. MELIORANSKIĬ, and I. V. ÉSTULIN

Institute of Nuclear Physics, Moscow State University



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USING a single-crystal luminescent spectrometer with NaI(Tl) crystal we investigated the gamma radiation produced in radiative capture of thermal neutrons in iodine and in neodymium isotopes. The measurement procedure was described earlier.[1,2]

**$I^{128}$.** The emission spectrum of this nucleus contained, in the energy region from 20 to 400 kev, gamma lines with energies $28 \pm 2$, $135 \pm 3$, and $158 \pm 4$ kev. Their respective intensities (percent per captured neutron) were $23 \pm 6$, $20 \pm 4$,