RESONANCE STRUCTURE IN THE $\gamma\gamma$ AND $\pi^0\pi^0$ SYSTEMS OBSERVED IN *dC*-INTERACTIONS ON THE JINR NUCLOTRON

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Along with π^0 and η mesons, a resonance structure in the invariant mass spectrum of two photons at $M_{\gamma\gamma} = 360 \pm 7 \pm 9$ MeV is observed in the reaction $dC \rightarrow \gamma + \gamma + X$ at momentum 2.75 GeV/c per nucleon. Estimates of its width and production cross section are $\Gamma = 64 \pm 18$ MeV and $\sigma_{\gamma\gamma} = 98 \pm 24^{+93}_{-67} \ \mu$ b, respectively. The collected statistics amount to 2339 ± 340 events of $1.5 \cdot 10^6$ triggered interactions of a total number $\sim 10^{12}$ of dC-interactions. First results on observation of the resonance in the invariant mass spectra of two π^0 mesons are presented. The data obtained in the $d + C \rightarrow \gamma + \gamma$ reaction [1] is confirmed by the $d + C \rightarrow \pi^0 + \pi^0$ reaction: the mean value of the resonance mass obtained from the $\pi^0 \pi^0$ spectra is: $M_{\pi\pi} = 359.2 \pm 1.9$ MeV; the intrinsic width, $\Gamma = 48.9 \pm 4.9$ MeV. The preliminary estimate of the ratio of $Br(R \rightarrow \gamma \gamma)/Br(R \rightarrow \pi^0 \pi^0) = (1.8 \div 3.7) \cdot 10^{-3}$. The total number of detected $R \rightarrow \pi^0 \pi^0$ events (the summed number of pairs in the region 300-450 MeV after background subtraction) is 3099 ± 152 .

[1] Kh. U. Abraamyan et al., Phys. Rev. C 80, 034001 (2009).

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