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K^{+} ⟶ π^{0}μ^{+}νγ and K^{+} ⟶ π^{0}e^{+}νγ decays: recent results from the «OKA» experiment

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The K^{+} ⟶ π^{0}μ^{+}νγ (K_{μ3γ}) and K^{+}⟶π^{0}e^{+}νγ (K_{e3γ}) decays are measured with OKA detector at the RF-separated 17.7 GeV/c momentum kaon beam from the U-70 synchrotron. The data obtained corresponds to the value of 2.62 × 10^{10} «live» kaons passing to the decay volume. About 10^{3} K_{μ3γ} and 10^{5} K_{e3γ} events are extracted. The ratios of R_{μ} = Br(K_{μ3γ})/Br(K_{μ3}) and R_{e} = Br(K_{e3γ})/Br(K_{e3}) are found to be (4.45 ± 0.25(stat)) × 10^{−4} and (58.7 ± 1.0(stat) ± 1.5(syst)) × 10^{−4} respectively. The T-odd correlation ξ_{πμγ} (ξ_{πeγ}), which is the mixed product of the momenta of μ^{+}(e^{+}), π^{0}, and γ in the kaon rest frame, is measured. The asymmetry of the distribution in ξ is characterized by the ratio A_{ξ} = (N_{+} + N_{−})/(N_{+} − N_{−}), where N_{+(−)} is the number of events with positive (negative) ξ. The value A_{ξ} = −0.006 ± 0.069(stat) for μ^{+} and (0.1 ± 3.9(stat) ± 1.7(syst)) × 10^{−3} for e^{+} is obtained.

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