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Λ spin-orbit splittings deduced from DWIA analysis of the ^{89}Y$(\pi^+, K^+)^{89}_{\Lambda}$Y reaction TOSHIO MOTOBA, Osaka Electro-Commun. University, JOHN MILLENER, Brookhaven National Lab, DMITRY LANSKOY, Moscow State University, YASUO YAMAMOTO, Tsuru University — High resolution measurements of hypernuclear γ rays from the ^{9}Be$(\pi^+, K^+\gamma)^{9}_{\Lambda}$Be and ^{13}C$(K^-, \pi^-\gamma)^{13}_{\Lambda}$C reactions have shown clearly that the ΛN spin-orbit force is very small. In heavier cases such as $^{89}_{\Lambda}$Y, however, the (π^+, K^+) experiments show a series of strong peaks having doublet-like substructure which apparently suggests sizable ΛN spin-orbit splittings. In order to resolve this discrepancy, detailed structure calculations of $^{89}_{\Lambda}$Y have been performed by taking nuclear core excitation into account. The obtained wave functions have been used to estimate the (π^+, K^+) reaction cross sections within DWIA. Based on a careful analysis of the peak structure, a theoretical explanation is given for the first time how to understand the doublet substructure in a series of observed major peaks in $^{89}_{\Lambda}$Y. In the discussion we conclude small Λ spin-orbit force which is consistent with the two light hypernuclear cases.

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