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Strength Functions for Photoproduction of Medium-Mass Hypernuclei TOSHIO MOTOBA, Osaka Electro-Communcation University, PETR BYDZOVSKY, MILOSLAV SOTONA, Nuclear Physics Institute, Prague, KAZUNORI ITONAGA, Gifu University, KENGO OGAWA, RIKEN, OSAMU HASHIMOTO, Tohoku University — Strength functions have been calculated for the photoproduction of Λ-hypernuclei by choosing typical medium-mass nuclear targets such as ^{28}Si, ^{40}Ca, and ^{52}Cr. The DWIA framework has been adopted together with the modern amplitudes for the elementary $\gamma p \to \Lambda K^+$ process. For the targets with surface proton jj-closed orbit (or the similar situation), the unnatural parity high-spin states such as 4^-, 5^+, 6^- and 7^+ are selectively excited due to the spin-flip dominant character of the elementary amplitudes. On the other hand, for the proton LS-closed target (^{40}Ca), natural parity high-spin states are excited as well. In both cases, it is important to obtain well-separated clear spectra. The nuclear level fragmentation caused by the one-proton annihilation is taken into account. The theoretical spectrum predicted for the first target (^{28}Si) proved to be in very good agreement with the result of recent analysis for the $^{28}\mathrm{Si}(e,e'K^+)^{28}_{\Lambda}\mathrm{Al}$ experiment done at JLab. Thus predictions for the latter two targets seem to give the promising and reliable spectra to encourage further extention of the $(e,e'K^+)$ experiments. Novel aspects of medium-mass hypernuclear spectroscopy will be discussed.

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