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X-ray spectroscopy experiments on exotic Ξ atoms at J-PARC

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X-ray spectroscopy of hadronic atoms is a strong measure to determine the strong interaction between the hadron and nuclei. At J-PARC, we have conducted two experiments on exotic atoms with doubly strange hyperon, Ξ^- , aiming at the world-first detection of the X rays. One is performed as a byproduct of J-PARC E07 experiment (search for double hypernuclei with hybrid emulsion technique) where Ξ^- is stopped on the emulsion. The other is a dedicated experiment for the detection of Ξ^- -Fe atom X rays (J-PARC E03). We will show the result of E07 and the status of the ongoing analysis for E03. We also discuss future prospects of Ξ -atomic X-ray spectroscopy.

Primary authors: YAMAMOTO, Takeshi O (JAEA); FOR J-PARC E03 COLLABORATION

Presenter: YAMAMOTO, Takeshi O (JAEA)

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