

Abstract Submitted  
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**Search for ultraviolet and visible rays from  $^{229\text{m}}\text{Th}$**  YOSHITAKA KASAMATSU, YUKI YASUDA, YUDAI SHIGEKAWA, Osaka University, KOICHI TAKAMIYA, TSUTOMU OHTSUKI, Kyoto University Research Reactor Institute, ATSUSHI SHINOHARA, Osaka University — Ultraviolet- and/or visible-ray emission from the  $^{229\text{m}}\text{Th}$  nucleus is indicated owing to its extremely low excitation energy of  $\sim 7.4$  eV. In addition, a drastic variation in the decay rate of  $^{229\text{m}}\text{Th}$  depending on its chemical environment is also expected. Although many experimental results were reported for the observation of the deexcitation of  $^{229\text{m}}\text{Th}$ , a consistent understanding of the deexcitation is considered not to be achieved. In this work, we separated  $^{229\text{m}}\text{Th}$  from its mother nuclide  $^{233}\text{U}$  and prepared  $^{229\text{m}}\text{Th}$  samples with several chemical forms such as chloride, nitrate, and hydroxide. Photon counting was performed for the samples with three types of photomultipliers for ultraviolet and visible rays (4–10, 1.9–7.2, or 1.4–6.8 eV). In the counting for 1.4–7.2 eV photons, no significant photon emission was observed for all the samples. In the presentation, we will show the results including those for higher energy photons.

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