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The S-Process Branching-Point at ^{205}PB[1] ANTON TONCHEV, Lawrence Livermore National Laboratory, N. TSONEVA, Universitat Gieen, C. BHATIA, C.W. ARNOLD, TUNL, S. GORIELY, Universite Libre de Bruxelles, S.L. HAMMOND, UNC Chapel Hill, J.H. KELLEY, North Carolina State University, E. KWAN, National Superconducting Cyclotron Laboratory, H. LENSKE, Universitat Gieen, J. PIEKAREWICZ, Florida State University, R. RAUT, UGC-DAE Consortium for Scientic Research, G. RUSEV, Los Alamos National Laboratory, T. SHIZUMA, Japan Atomic Energy Agency, W. TORNOW, Duke University and TUNL — Accurate neutron-capture cross sections for radioactive nuclei near the line of beta stability are crucial for understanding *s*-process nucleosynthesis. However, neutron-capture cross sections for short-lived radionuclides are difficult to measure due to the fact that the measurements require both highly radioactive samples and intense neutron sources. We consider photon scattering using monoenergetic and 100% linearly polarized photon beams to obtain the photoabsorption cross section on ^{206}Pb below the neutron separation energy. This observable becomes an essential ingredient in the Hauser-Feshbach statistical model for calculations of capture cross sections on 205Pb. The newly obtained photoabsorption information is also used to estimate the Maxwellian-averaged radiative cross section of ^{205}Pb(n,g)^{206}Pb at 30 keV. The astrophysical impact of this measurement on s-process nucleosynthesis will be discussed.

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