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Optimization of the profile of a pulsed slow positron beam extracted from a buffer-gas positron trap for the production of a variable energy positronium beam[1] R. GLADEN, Univ of Texas at Arlington, K. MICHISHIO, L. CHIARI[2], Tokyo University of Science, N. OSHIMA, AIST, Tsukuba, Japan, Y. NAGASHIMA, Tokyo University of Science — In this poster we will present some details of steps taken to optimize the beam profile of a pulsed slow positron beam extracted from a buffer-gas positron trap. The beam will be employed for the production of a novel positronium beam by the acceleration and photodetachment of positronium negative ions [1, 2]. The TUS group is planning on using this beam to study positronium diffraction from solid surfaces, providing a unique neutral-particle spectroscopic method with several advantages over conventional neutral-particle spectroscopy, such as a reduced particle mass and, hence, the reduction of damage to the sample surface. [1] K. Michishio, et al. Phys. Rev. Lett. **106**, 153401 (2011) [2] K. Michishio, et al. Appl. Phys. Lett. **100**, 254102 (2012)

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