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Cross-section for formation of the triplet positron-helium bound state JOSEPH DI RIENZI, College of Notre Dame of Maryland, RICHARD DRACHMAN, Goddard Space Flight Center — The state consisting of a positron bound to the first triplet excited state of helium was conjectured to exist long ago [1] and established rigorously recently [2]. In Ref. [1] it was suggested that an efficient way to form this interesting system would be by collision of positronium and ground-state helium: Ps+He[^{1}S]$\rightarrow$He(^{3}S^e)e$^+$+e$^-$. The idea is that a target of natural helium would be convenient, although the positronium beam is technically difficult. In addition, the cross-section should be of atomic size. Competing with this process would be radiative capture of a positron on metastable triplet helium. We are working to evaluate cross-sections for both these processes, using the Born approximation and simplified initial and final wave functions. [1] R. J. Drachman, Y. K. Ho, and S. K. Houston, J. Phys. B **9**, L199 (1976) [2] G. G. Ryzhikh and J. Mitroy, J. Phys. B **31**, 3465 (1998).

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