Cross Sections and Spin Asymmetries for Electron Collisions with Lead.\textsuperscript{1} M. VAN ECK, K. MCNAMARA, D. V. FURSA, I. BRAY, Curtin University, O. ZATSARINNY, K. BARTSCHAT, Drake University — We present angle-integrated and angle-differential cross sections as well as spin asymmetries for elastic and inelastic electron collisions with lead atoms. The results were obtained using the fully relativistic convergent close-coupling (RCCC) \cite{Fursa2008} and the Dirac B-spline R-matrix (DBSR) \cite{Zatsarinny2008} methods. They will be compared with experimental data and predictions from previous calculations. In particular, the spin asymmetries for the optically forbidden inelastic transitions from the $(6p^2)^3P_0$ ground state to other states of the $6p^2$ manifold, measured by Geesmann \textit{et al.} \cite{Geesmann1991}, are known to be very challenging for theory \cite{Zatsarinny2008}. We analyze the sensitivity of the predictions to the quality of the target description as well as the number of channels included in the close-coupling expansion. \cite{Fursa2008} D. V. Fursa and I. Bray, Phys. Rev. Lett. 100 (2008) 113201. \cite{Zatsarinny2008} O. Zatsarinny and K. Bartschat, Phys. Rev. A 77 (2008) 062701. \cite{Geesmann1991} H. Geesmann, M. Bartsch, G. F. Hanne, and J. Kessler, J. Phys. B 24 (1991) 2817. \cite{Zatsarinny2013} O. Zatsarinny, Y. Wang, and K. Bartschat, J. Phys. B 46 (2013) 035202.

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