Single photon double ionization of the He-like Li$^+$ ion B.M. McLAUGHLIN, School of Mathematics and Physics, Queen’s University of Belfast, Belfast BT7 1NN, UK, C.P. BALLANCE, Department of Physics, Auburn University, Auburn, AL 36840, USA — The success of the R-matrix plus pseudo-state (RMPS) method to model single photoionization, is exploited and extended to calculate the single photon double ionization cross-section for the He-like ion, Li$^+$, from both the ground state and the n=2 excited levels. Comparisons of the present R-matrix plus pseudo-state (RMPS) results are made with other theoretical methods such as time-dependent close-coupling (TDCC), the convergent close-coupling (CCC) and the B-spline approach. Suitable agreement between the various theoretical approaches are achieved but some differences occur which are highlighted and discussed. The maxima in the respective cross sections are extremely small, being in the region of 2Kb for the ground state and 1Kb and 6 Kb, for the n=2 meta stable states which makes their experimental determination very challenging.