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***Ab Initio* Study of High-Lying Doubly Excited States of Helium in Static Electric Fields: Complex-Scaling Generalized Pseudospectral Method in Hyperspherical Coordinates**[1] JOHN HESLAR, National Taiwan University, Taiwan, SHIH-I CHU, University of Kansas — We present a new complex-scaling (CS) generalized pseudospectral (GPS) method in hyperspherical coordinates (HSC) for *ab initio* and accurate treatment of the resonance energies and autoionization widths of two-electron atomic systems in the presence of strong dc electric field. The GPS method allows non-uniform and optimal spatial discretization of the two-electron Hamiltonian in HSC with the use of only a modest number of grid points. The procedure is applied for the first precision calculation of the energies and autoionization widths for the high-lying $^1S^e$, $^1P^o$, $^1D^e$ and $^1F^o$ (n=10 to 20) doubly-excited resonance states of He atoms. In addition, we present the first theoretical prediction of the energies and widths of high-lying doubly-excited resonance states of $^1P^o$ (n=8-15) in external dc electric field strengths of 3.915-10.44 kV/cm. The calculated dc-field perturbed high-lying resonance energies are in good agreement with the latest experimental data.

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John Heslar
National Taiwan University

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