Calculation of energies of three-electron systems in a strong magnetic field using Explicitly Correlated Gaussian Basis JORGE SALAS, KALMAN VARGA, Vanderbilt University — Strong magnetic fields can significantly alter the properties of atoms and allow the formation of stable negative ions such as He^-. We have calculated the energies of systems comprised of three electrons in the presence of strong magnetic fields by using the Stochastic Variational Method with deformed Explicitly Correlated Gaussian basis.[1] This approach yields accurate values for three-electron systems and predicts that the He^- ion in a strong magnetic field has stable states, within the non-relativistic framework, in the infinite nuclear mass approximation. The energy spectrum and the properties of three-electron systems as a function of the strength of the magnetic field show the effect of the rivalry between the Coulomb interaction and the magnetic confinement.

[1]J. A. Salas and K. Varga, **Phys. Rev. A** 89, 052501 (2014)

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