1117-65-471 **Abhinandan Chowdhury*** (`chowdhury@savannahstate.edu`), Department of Mathematics, Savannah State University, Savannah, GA 31404, and **Mark Delcambre**. *A Numerical Modelling for the Potential Flow Around Two Non-overlapping Spheres in Arbitrary Motion through an Ideal Fluid.* Preliminary report.

The velocity potential of an ideal fluid around two spheres having constant velocity is considered. Bi-spherical coordinates are used, together with a transformation of the dependent variable that leads to separation of variables. Then the solution can be sought in Legendre series with respect to one of the bi-spherical coordinates. An important element of the proposed work is the effective way to reduce an essentially 3D problem to a set of three 2D problems. The Legendre spectral method is shown to have an exponential convergence which is confirmed by the computations. The efficiency is so high that even for the hard cases of two closely situated spheres, an accuracy of $10^{(-15)}$ is achieved with as few as 20 terms in the expansion. (Received January 19, 2016)