Abstract Submitted for the DFD10 Meeting of The American Physical Society

The motion of singularities in potential flow STEFAN LLEWELLYN SMITH, MAE, UCSD — In the first paper on vorticity, Helmholtz discussed infinitesimal rectilinear filaments, and Kirchhoff subsequently derived the equation of motion of point vortices. This equation can be viewed as the statement that the translational velocity of the point vortex is obtained by removing the leading-order singularity due to the point vortex when computing its velocity. I review the arguments used to obtain this result and discuss their history and limitations. I then examine the extension of these ideas to other kinds of singularities and give some examples.

> Stefan Llewellyn Smith MAE, UCSD

Date submitted: 28 Jul 2010

Electronic form version 1.4