1126-35-246 **Stephane Lafortune*** (lafortunes@cofc.edu), Department of Mathematics, College of Charleston, Charleston, SC 29424, **Annalisa Calini** (calini@cofc.edu), Department of Mathematics, College of Charleston, Charleston, SC 29424, and **Brenton Lemesurier** (lemesurierb@cofc.edu), Department of Mathematics, College of Charleston, Charleston, SC 29424. *Linear and Orbital Stability of Solutions to the VFE and the VFE Hierarchy.*

By the term vortex filament, we mean a mass of whirling fluid or air (e.g. a whirlpool or whirlwind) concentrated along a slender tube. The most spectacular and well-known example of a vortex filament is a tornado. A waterspout and dust devil are other examples. In more technical applications, vortex filaments are seen and used in contexts such as superfluids and superconductivity. One system of equations used to describe the dynamics of vortex filaments is the Vortex Filament Equation (VFE). The VFE is a system giving the time evolution of the curve around which the vorticity is concentrated. In this talk, we develop a framework for studying the orbital stability of VFE soliton solutions, based on the Hamiltonian formalism. If time permits, we will also tackle the case of solutions to other members of the VFE hierarchy of integrable equations. (Received January 15, 2017)