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Ira Waker and **David S. Torain, II*** (david.torain@hamptonu.edu), Hampton University, Department of Mathematics, Hampton, VA 23668, and **Morris Morgan**. *An Eigenvalue Search Method using the Orr-Sommerfeld Equation for Shear Flow*.

This work focuses on exploring the controllability of unmanned aerial vehicles' (UAVs) flight formation, where the behavior of each vehicle is represented by a set of nonlinear state-space equations. The entire collection of vehicles comprises the system, where each individual UAV is a subsystem element. The lead vehicle is the driver while the remaining vehicles operate under the control of the driver. The overall effectiveness of the mission is predicated on the synchronization or coupling of the system among its constituent subsystems. One paramount question that is to be addressed is: what is the impact of the functional form of the state equations and controller structure on overall system stability? (Received September 24, 2012)