

**YMC2004 TALK ABSTRACT**

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Title: Trajectory estimation of small diameter rockets

Description:

The purpose of this research is to develop an accurate and efficient method for estimating the trajectory of small diameter rockets based on accelerometers and gyroscopes mounted to the flight vehicle. Specifically, we will derive the governing equations for the trajectory of a 2.75-inch rocket typically launched from a helicopter platform. Eulerian and quaternion formulations will be presented along with consideration for wind effects, sensor errors, and mass variations as time permits. Simulations based on sensor data obtained from the U.S. Army will also be provided.