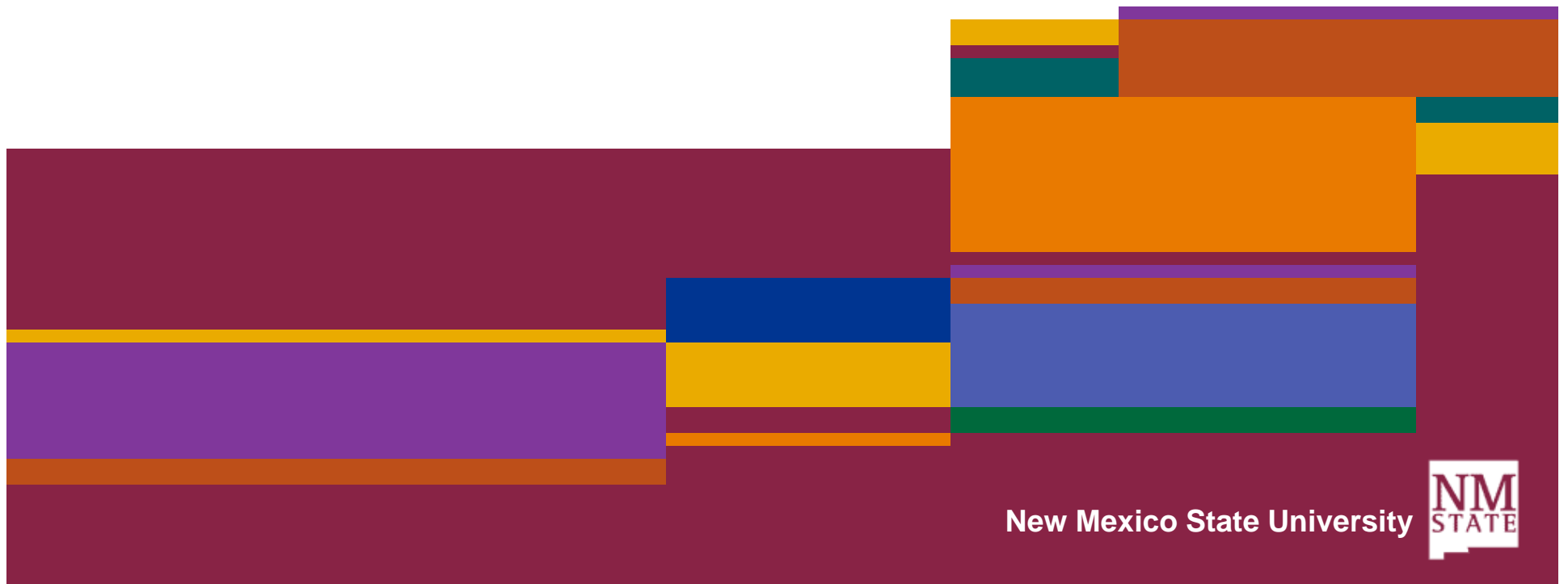


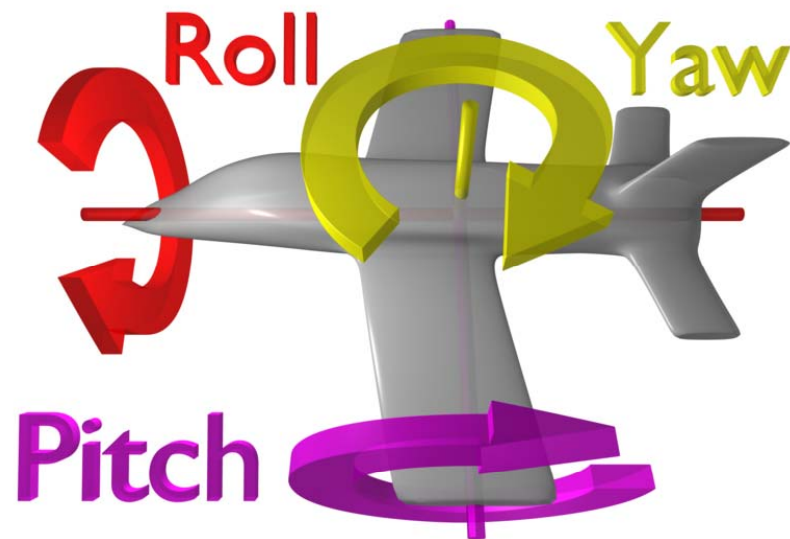
# MEMS Accelerometer Based Inertia Navigation System

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**Inertial Navigation System:** is a navigation aid that uses a computer and motion sensors to continuously track the position, orientation, and velocity (direction and speed of movement) of a moving object without the need for external references.

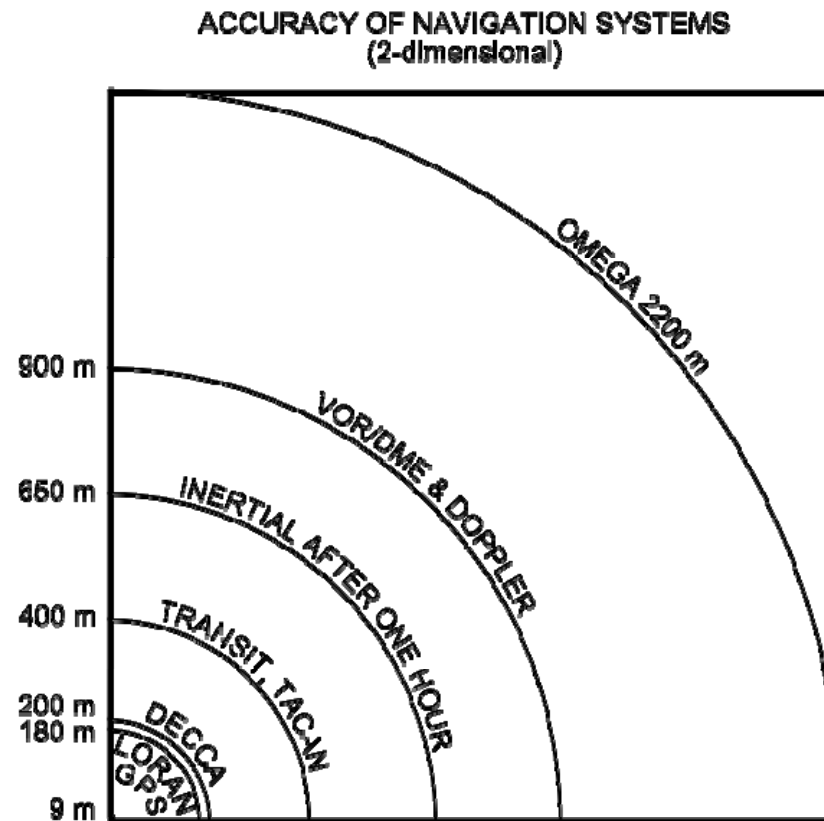


INS    INU  
MEMS

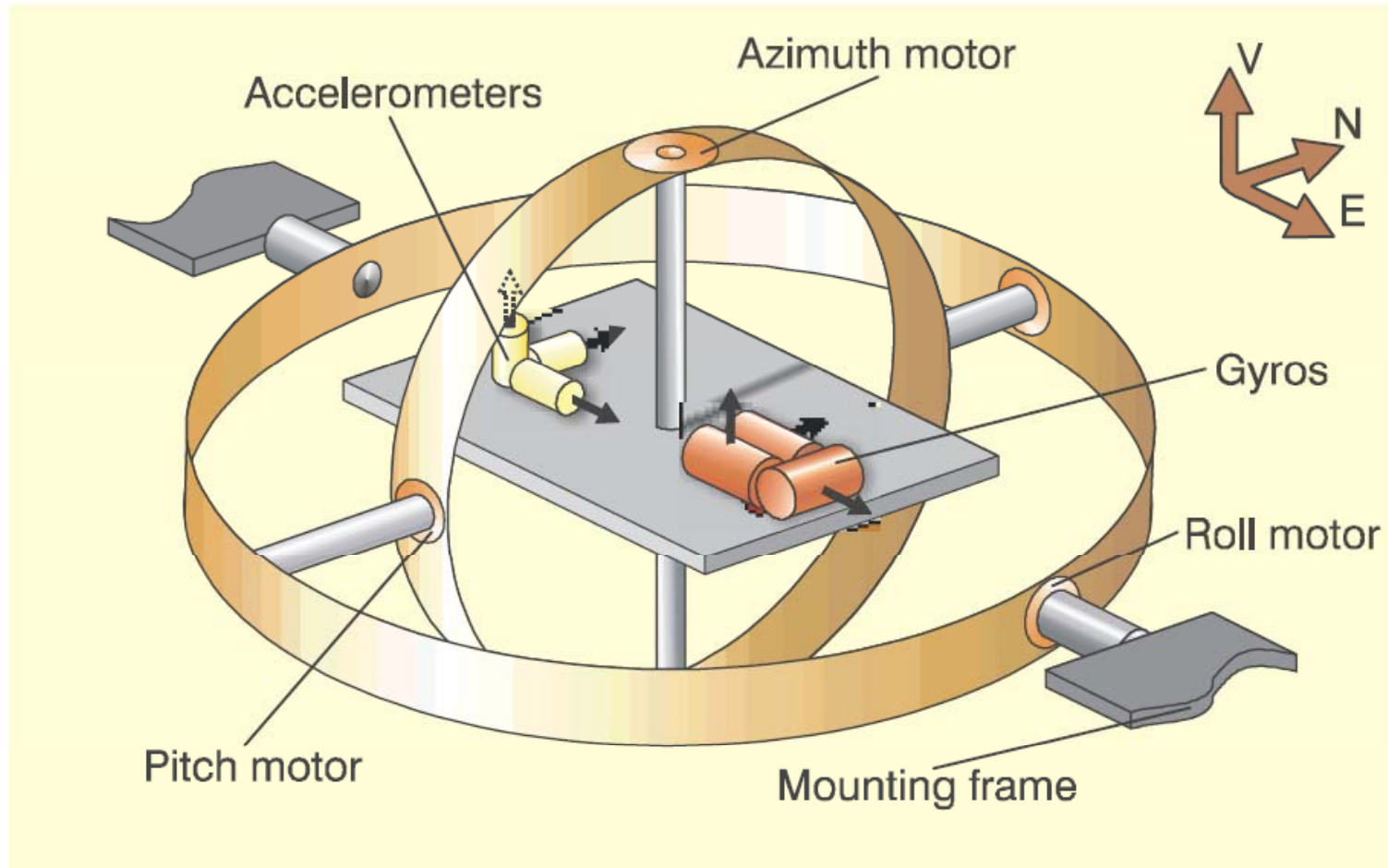


# Benefits and Problems of INS

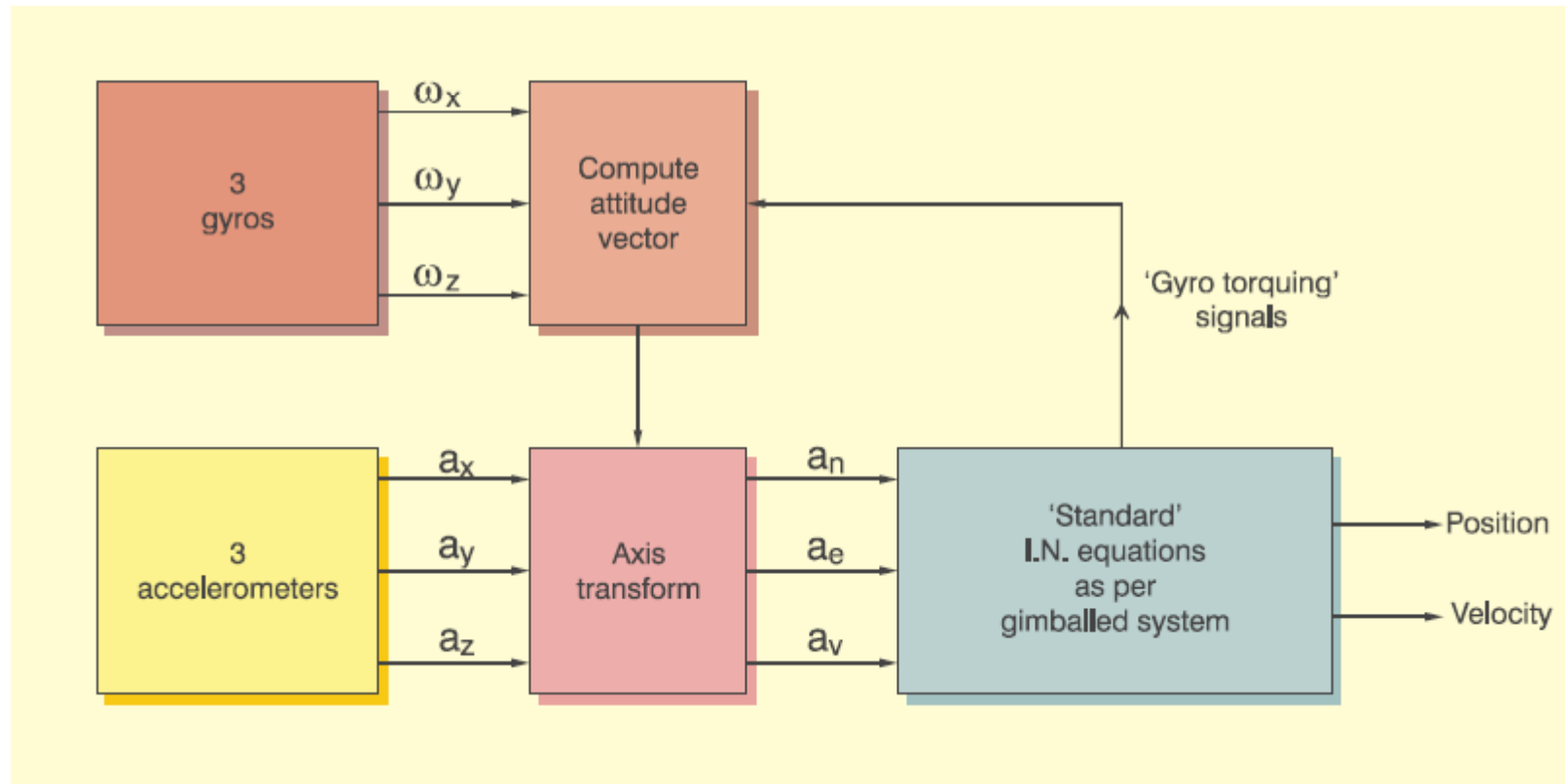
INS navigation relies on gravity so it requires no external electronic reference signals.



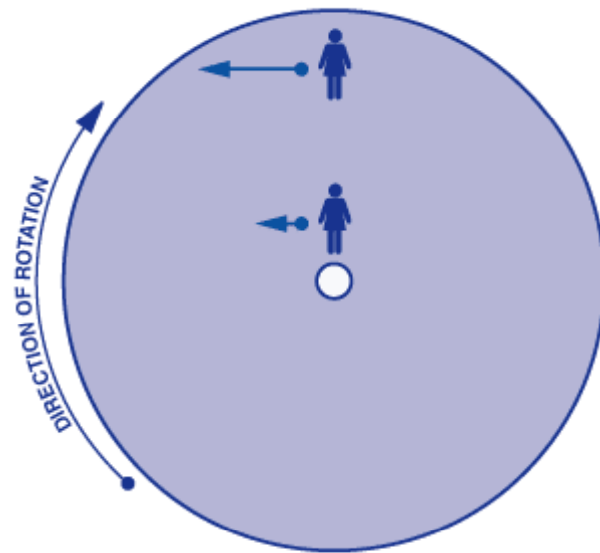
# 6 Axis INU



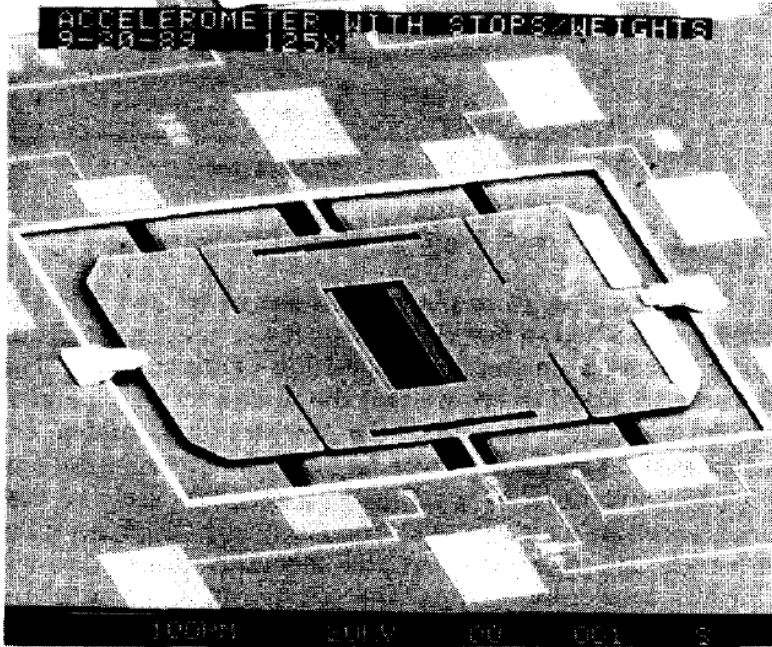
# 6 Axis INS Data Path



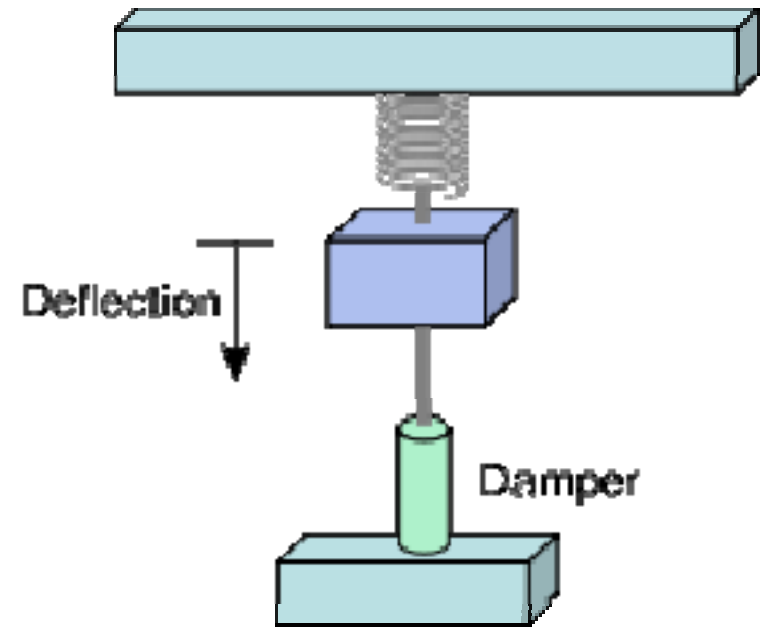
# 6 Axis INU from MEMS Accelerometers (Gyroscope Free)



# MEMS Accelerometer implementation



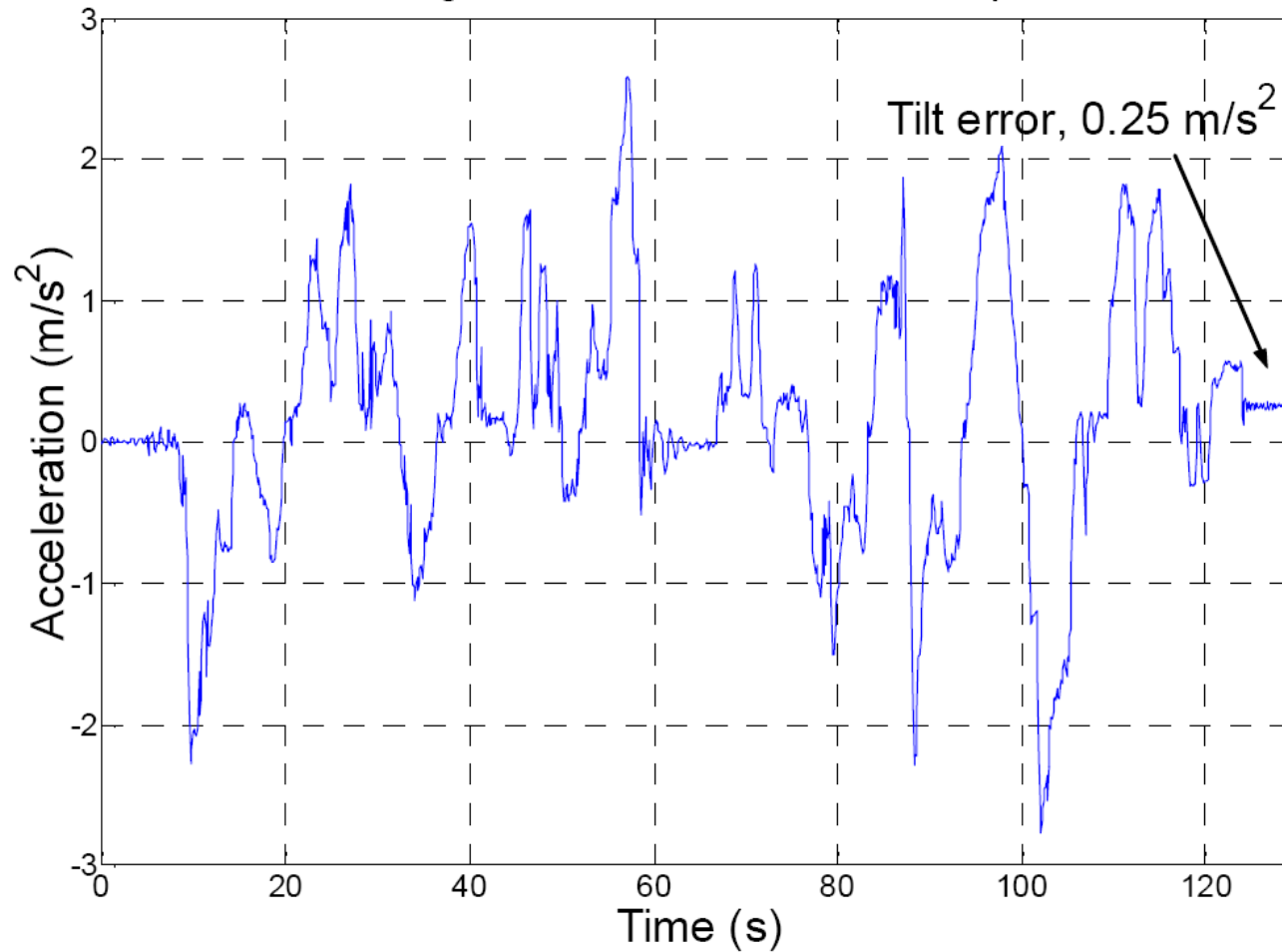
Silicon force rebalance accelerometer.



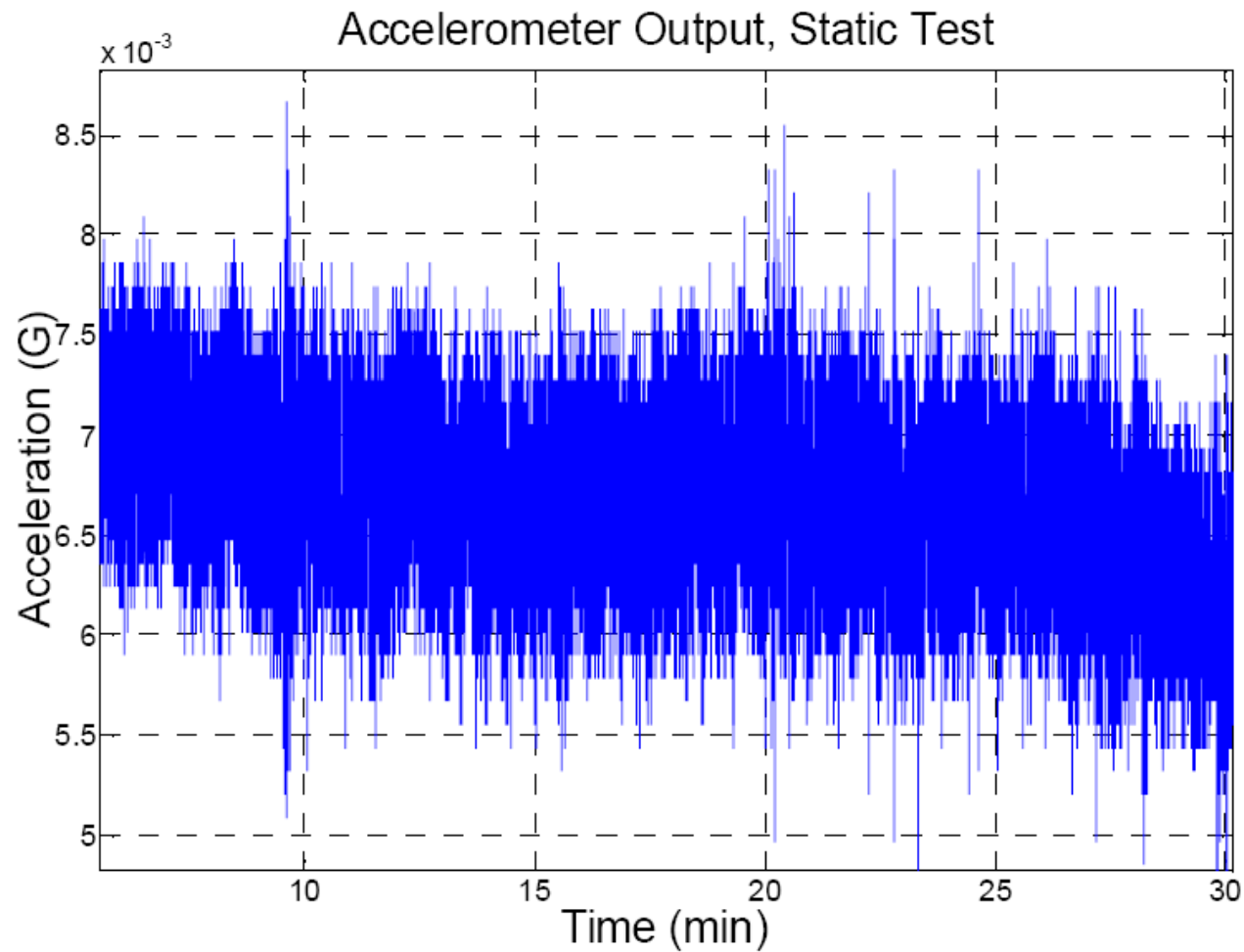
$$F = ma$$

# Tilt Error Test

Along-Track Accelerometer Output



# Static Noise Tests



- The End -

