

Abstract Submitted  
for the APR07 Meeting of  
The American Physical Society

**Achievement of the Magnetic Environment Requirements for Gravity Probe B**<sup>1</sup> JOHN MESTER, Stanford University, JAMES LOCKHART, SF State Univ; Stanford Univ., MICHAEL TABER, Stanford University — The proper function of the Gravity Probe B gyroscope readout system necessitated the most stringent magnetic environment requirements of any NASA flight program. We describe the generation of an ultra-low magnetic field of  $< 10^{-11}$  Tesla in the flight dewar, non-magnetic materials, fabrication, and assembly regimen to minimize remanent fields in the vicinity of the science gyros, and a magnetic shield system that attenuated external magnetic field variation by a factor of  $10^{12}$ . Techniques for requirement verification, including the development of specialized magnetic measurement facilities, will be discussed. On orbit gyro trapped flux and readout data that confirm the achievement of the fundamental magnetic requirements will be presented.

<sup>1</sup>Research supported by NASA under contract NAS8-39225

William Bencze  
Stanford University

Date submitted: 12 Jan 2007

Electronic form version 1.4