

# IAA Study Group Status Report

**Responsible Commission:** 2

**Study Number and Title:** 2.2 Artificial Gravity as a Tool in Biology and Medicine

**Short Study Description** (repeat from Study Group Proposal):

Increased attention has been called to Artificial Gravity following the recent U.S. announcement of a Space Exploration Vision involving long-duration human missions to Mars. IAA Study Group 2.2 on the subject of Artificial Gravity (AG) was therefore organized under the chairmanship of Prof. Laurence Young and Prof. Kazuyoshi Yajima, with Dr. William Paloski serving as executive secretary. The scope of the Study Group 2.2 activities and report covers the key questions that need to be answered to make AG a practical countermeasure, the facilities and flight opportunities required to answer these questions, and a timeline or schedule to accomplish the research project. Experimental models considered include human and animal experiments on earth and in space using short radius intermittent centrifugation and/or long radius continuous rotation. The goal of this study is to recommend research models, venues, and approaches aimed at reducing the uncertainty in the questions of *how* to produce AG (spin rate, intermittent vs. continuous,  $g$  gradient, etc) and at determining the likely effectiveness and acceptability of AG, both as a countermeasure and as a driver to engineering solutions. This study is not aimed at recommending whether any given human exploration mission should or should not use AG as opposed to other countermeasure approaches. If the recommended program of AG facility development and its accompanying research is carried out we will be able to inform managers and mission designers as to the specific AG requirements and their costs and benefits for any given mission scenario.

**Progress in past six months:**

The first meeting of the Study Group was held in Vancouver, Canada on October 5, 2004, with sixteen interested members of the Academy or attendees at the IAF meeting participating. Writing assignments made during the October meeting are due to on March 15, 2005, and will be incorporated into a draft report for distribution to the study group members. The second formal meeting of the Study Group will be held in Graz, Austria during the Humans in Space Conference in May 2005. The draft report will be reviewed and debated at this meeting. The final report will be completed and presented at the IAF Meeting in Fukuoka, Japan in October 2005.

**Website Study Information up to date?** (Study Group Membership, Study Plan and Schedule): currently unable to access

**Issues requiring resolution?** (recommend approach): None

**Product Deliveries on Schedule?** (If modified explain rationale): Yes

**Study Team Member Changes?** (List any Study Team Members that you wish to discontinue, and provide names plus contact coordinates of any Members you wish to add on the second page of this Study Update form.) Note: Complete contact information including email, tel. and fax must be provided for all additions. Only Members with complete contact information will be listed and receive formal appointment letters from the IAA Secretariat.)

**Name of person providing Study Group Status** (Study Group Chair or Co-Chair):  
Dr. William Paloski, Executive Secretary

**Status Report Date: 8 March 2005**

Please email the completed reports to Dr. Kasturirangan, [krangan@nias.iisc.ernet.in](mailto:krangan@nias.iisc.ernet.in) and [katkuri@isro.org](mailto:katkuri@isro.org), and Dick Kline, [rlkline@cox.net](mailto:rlkline@cox.net). Then post it on your IAA Commission Website **no later than March 8, 2005. Thank you!**

### **Study Team Membership Changes**

Effectivity Date:

**Discontinue:**

Name  
Current email address

**Add:**

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