

# Proposal for Forming an IAA Study Group SG 3.15

**Title of Study:**

**LONG TERM SPACE PROPELLANT DEPOT**

**Proposer(s): Lu Yu**

**Primary IAA Commission Preference:** COMMISSION 3 Space Technology & Systems Development

**Secondary IAA Commission Interests:** COMMISSION 4 Space Systems Operations & Utilization

**Members of Study Team**

**Chair(s):**G.Sacoccia (ESA), Co-Chair TBD

**Secretary:** Wang Xiaowei, TBC

**Other Members:**

Lu Yu, Shen Lin, Liu Wei, Gao Zhaohui, Wang Xiaowei, Li Yufei

+ **TBD** members and non- members of the Academy

**Short Description of Scope of Study**

Long term on-orbit storage of propellant is a key technology for future deep space exploration, this involves numerous technology requirements such as cryogenic propellant management, boil-off control, propellant supply and transfer on-orbit, etc. The study will promote and advance the future application of high energy propulsion in various space transportation systems, so that the objectives of future missions may be enhanced with a cost reduction.

**Overall Goal:**

*Identify requirements, concepts and opportunities for future high energy propellant space depots, identify required key technologies and define the road map for this new capability..*

**Intermediate Goals:**

Offer opportunities for cooperation among nations on international deep space exploration and utilization, motivate innovation, and foster deep space exploration activities.

*Identify, evaluate and characterize requirements and concepts for future long term space propellant depots in the 2020-2050 time frame. Both technical and economic aspects will be considered, and alternate scenarios established and discussed.*

*High level findings and recommendations for the consideration of the global space community will be formulated.*

**Methodology:**

Setup an international study group, draft a detailed schedule of the study;  
Agreement on a study report outline.  
Assigning individual responsibility for parts of the study report.  
Assigning editor to coordinate individual parts and compile a coherent study report.  
Work to be conducted through on-line collaboration and study group meetings held in the course of annual International Astronautical Congresses and the IAA Spring meetings.

**Time Line:**

Draft outline of report: November 2013  
Review outline of report and make assignments: October 2014  
First draft of report: December 2014  
Final report: December 2015

**Final Product (Report, Publication, etc.):**

Publishable report to be distributed to the space international community

**Target Community:**

International space community, universities, small businesses in the aerospace and education communities.

**Support Needed:**

Communication of meeting opportunities at conferences

**Potential Sponsors:**

CASA

*To be returned to the IAA Secretary General Paris by fax: 33 1 47 23 82 16 or  
by email: sgeneral@iaaemail.org*

**Date:**

*(No Signature required if document authenticated).*

***Follow-up Section for IAA use only***

***Initial Phase***

***Application received:***

***Commission Approved:***

***SAC Approved:***

***Web Site Section opened:***

***Members Formally Appointed by IAA:***

***Final Phase***

***Peer Review by Commission Completed:***

***Recommended by the Commission:***

***Final Report Received:***

***SAC Approved:***

***BOT Accepted:***

***Publisher Selected:***

***Study Published:***