

## Biological and Physical Sciences (BPS)

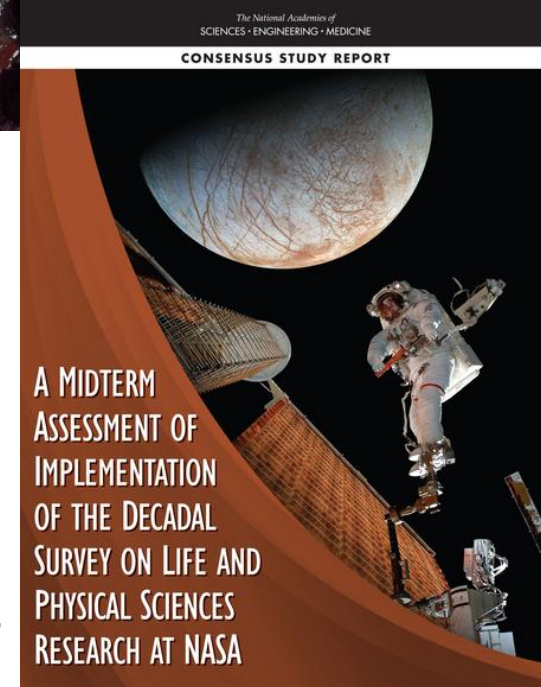
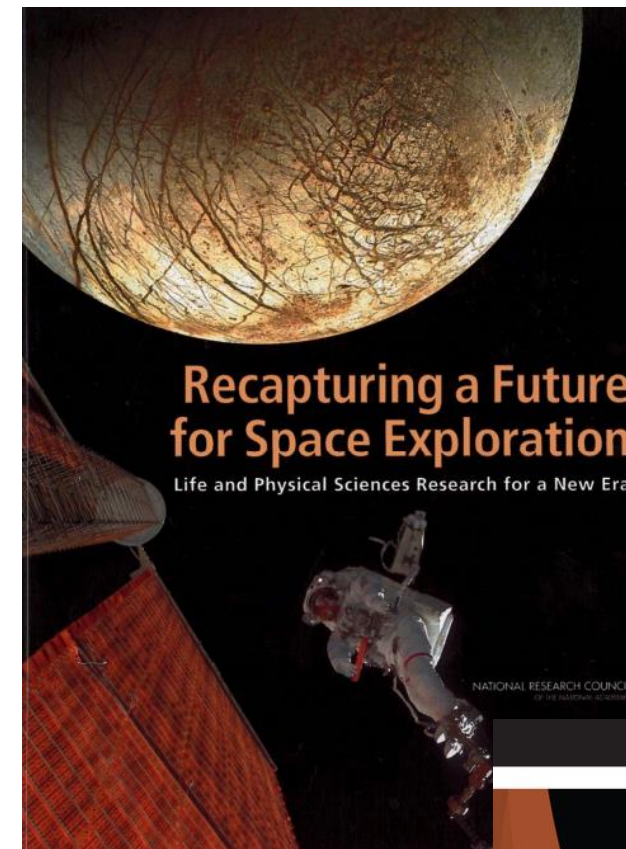
- Use spaceflight environments to **study biological and physical systems**
- Examine phenomena under extreme conditions can **help us better understand how they function**
- Together, this can contribute to significant and technological advancement that **enables space exploration and benefits to life on Earth**

BPS Division's mission is two-pronged:

- pioneer scientific discovery
- enable human spaceflight exploration

UF

2011



2017

# You

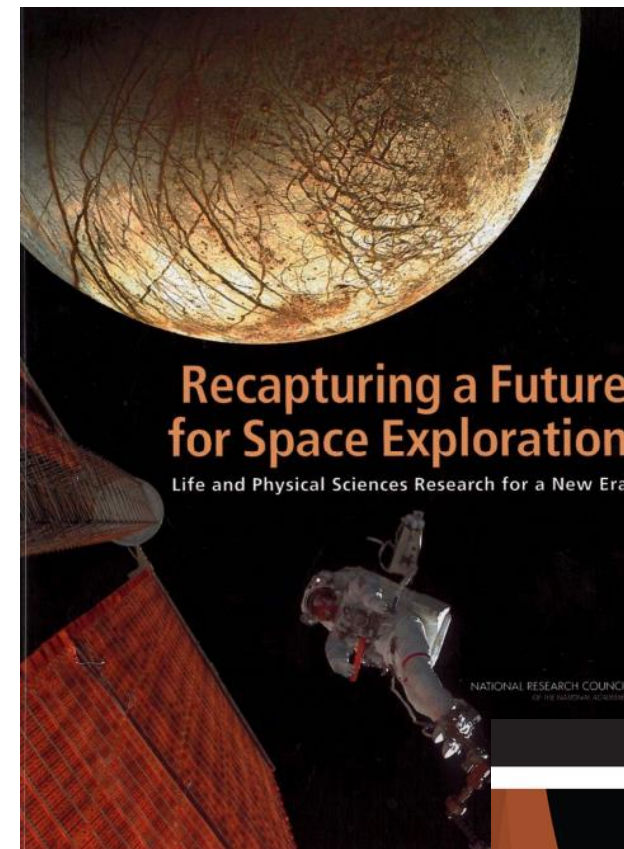
- Early career focal points
- Effects on policy and what that means for you
- Not a typical (?) or comfortable (?) awareness of science roles

Your mission, your career can be two-pronged:

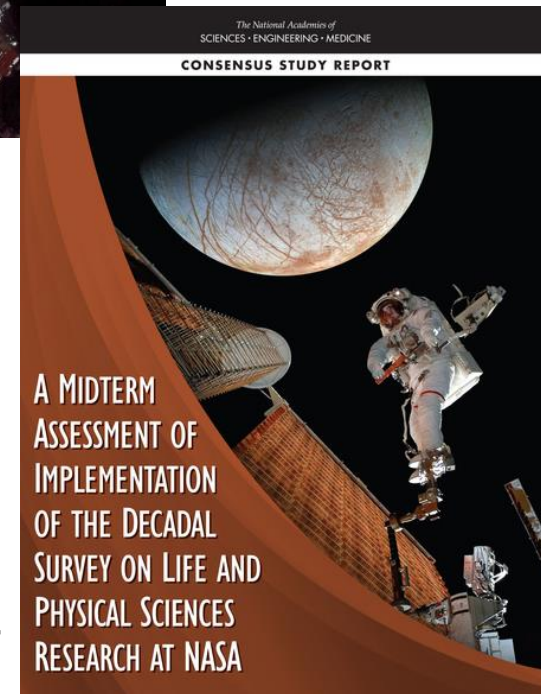
- scientific discovery and enable exploration
- Help determine the path of that exploration

UF

2011



2017





# BPS Platforms for Research

*\*Future Platforms*



CubeSat



International Space Station



Free Flyers (BION)



*\*Lunar Gateway*



*\*Commercial Lunar Lander Services*



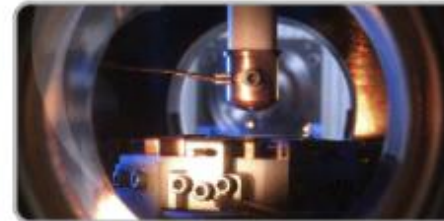
Drop Tower



Parabolic Flight



Sounding Rocket  
Sub-orbital Vehicle



Electrostatic Levitator



*\*Human Landing System*



Rodent Unloading



Centrifuge



Balloon Flight



NASA Space Radiation Lab



NASA Isolation Chamber



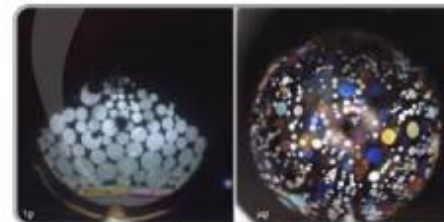
NSF Polar Station



Russian Isolation Chamber



Gravity Vector Averaging



Physical Sciences  
Informatics



GeneLab



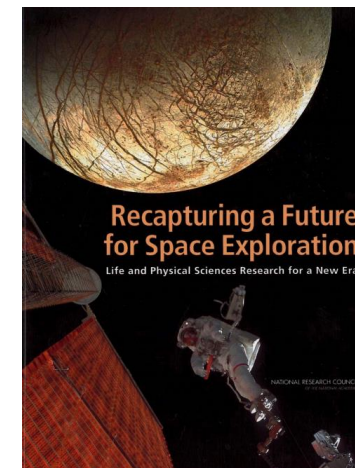
## 2023 – 2032 Decadal Survey in BPS

Prior to the establishment of the Decadal Survey Committee, NASEM's Committee on Biological and Physical Sciences in Space (CBPSS) called for community input on preliminary ideas regarding key issues, challenges and emerging topics in the field for consideration in the Decadal Survey.

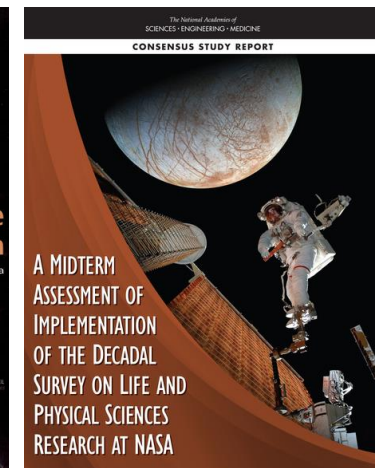
- Concept papers (i.e. white papers) – portal open
- Official NASEM website for the Decadal Survey, includes Statement of Task
- Preliminary input invited by the Committee on Biological and Physical Sciences in Space
- Follow **#BPSDecadalSurvey** on social platforms
- American Society for Gravitational and Space Research (ASGSR)

<https://asgsr.org/decadal-survey/>

<https://www.nationalacademies.org/our-work/decadal-survey-on-life-and-physical-sciences-research-in-space-2023-2032>



2011



2017

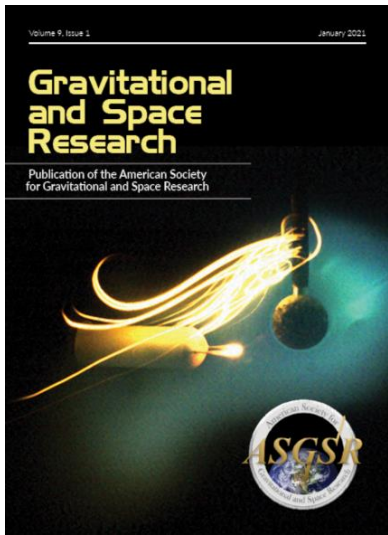
In Progress

2023  
to  
2032

# American Society for Gravitational and Space Research

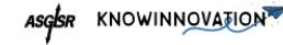
- Annual meeting for networking and meeting program officers in the Biological and Physical Sciences division of SMD

<https://asgsr.org/>



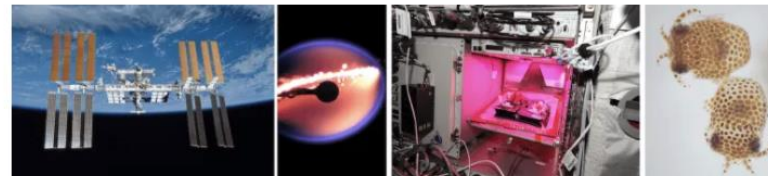
- Members can publish free in GSR research journal published by Sciendo

<https://mc.manuscriptcentral.com/gsr>



ASGSR Decadal Survey Workshop Series

A once in a decade opportunity...



Over the next two years the National Academies of Science, Engineering and Medicine (NASEM) will be developing the next Decadal Survey on Life and Physical Sciences Research in space 2023-2032, which will serve as a critical framework to shape the upcoming vision and strategy plan for NASA's research efforts in the area of biological and physical sciences in space.

The NASEM Decadal Survey committee will be reviewing the current state of knowledge in areas of space-related biological and physical sciences research, identify the most compelling scientific challenges and frontiers within Biological and Physical Sciences in Space Research, and develop a comprehensive research strategy to advance these areas of NASA's portfolio. The full description of the NASEM Statement of Task can be found [here](#).

To facilitate the development of this survey, the American Society for Gravitational and Space Research (ASGSR) is collaborating with KnowInnovation hosting a series of workshops to help foster community-wide discussions within and across biological and physical science disciplines. Our primary goal of these workshops is to identify potential Research Campaign issues, or those potentially transformative research topics that could not be done with a normal single grant and that will drive the momentum into potential new and cross-disciplinary areas.

Decadal  
Survey in  
Biological  
and Physical  
Sciences  
2023 - 2032

<https://asgsr.org/decadal-survey/>

<https://www.nationalacademies.org/our-work/decadal-survey-on-life-and-physical-sciences-research-in-space-2023-2032>



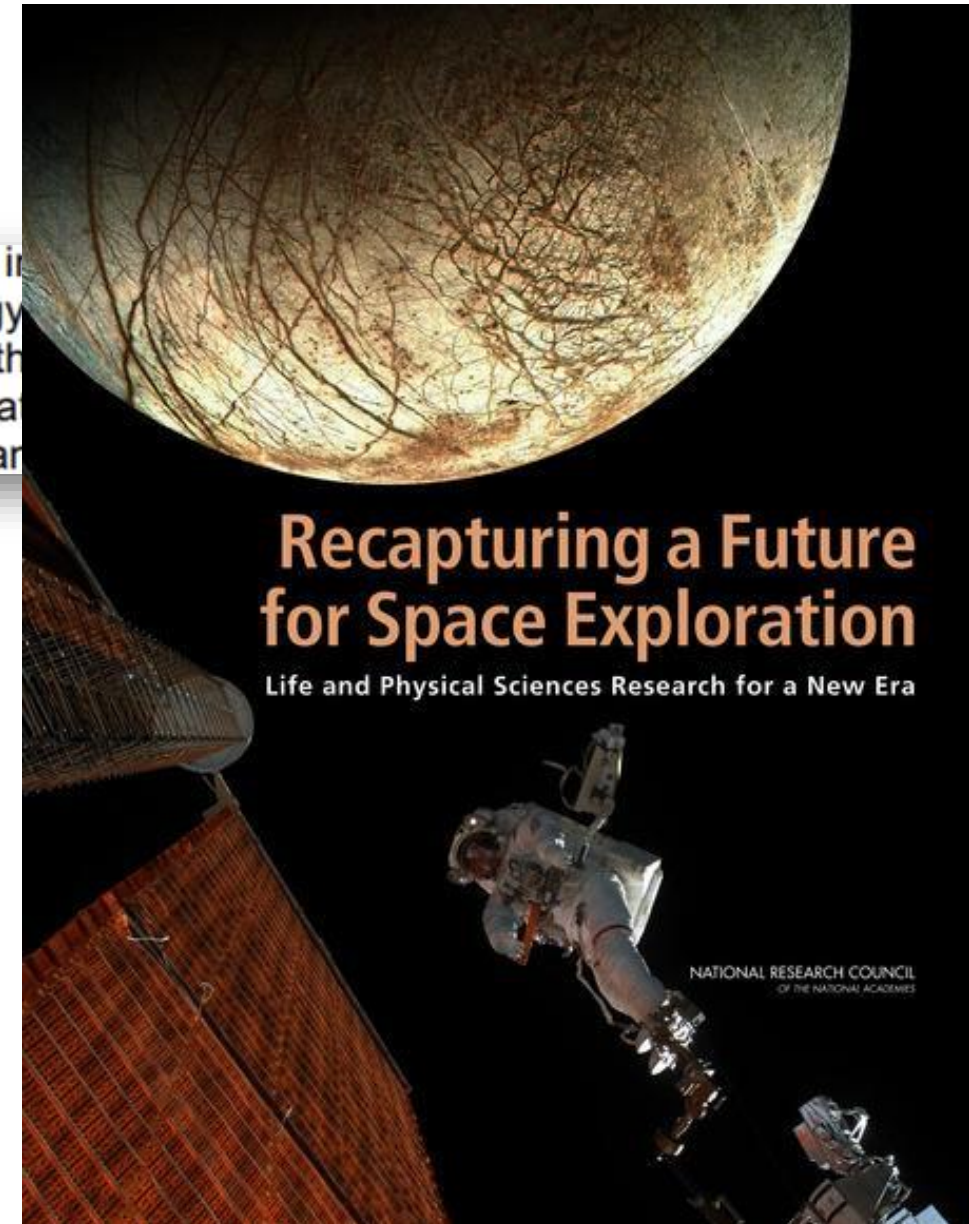
# Finding alignment with NASA topics and your research

> [E.12 Space Biology Call for Flight and/or Ground Research Proposals as clarified December 3, 2020 \(.PDF\)](#)

different platform requirements (i.e., ISS-flight and/or ground) described in and are limited to the specific Focus Areas (Integrated Animal Physiology, Biology, or Microbial Ecosystems) described in Section 2.3. Proposers, the strongly encouraged to read this program element carefully to ensure that applications are compliant with the requirements for each Project Type and

It is important to connect your research to the Life and Physical Sciences Decadal Survey

<https://www.nap.edu/catalog/13048/recapturing-a-future-for-space-exploration-life-and-physical-sciences>





# Beyond BPS: HEO - Human Research Roadmap

Crew health and performance is critical to successful human exploration beyond low Earth orbit.

The Human Research Program (HRP) investigates and mitigates the highest risks to human health and performance, providing essential countermeasures and technologies for human space exploration.

