# Article information:

(PDF) International Space Exploration Coordination Group Assessment of Technology Gaps for LOx/Methane Propulsion Systems for the Global Exploration Roadmap (2016) | Eric A. Hurlbert | 12 Citations
<https://typeset.io/papers/international-space-exploration-coordination-group-48dy33hwja>

# Article summary:

1. The International Space Exploration Coordination Group (ISECG) formed two technology gap assessment teams to evaluate topic discipline areas that had not been worked at an international level to date.

2. LOx/Methane propulsion systems are enabling for future human missions Mars by significantly reducing the landed mass of the Mars ascent stage through the use of in-situ propellant production, for improving common fluids for life support, power and propulsion thus allowing for diverse redundancy, for eliminating the corrosive and toxic propellants thereby improving surface operations and reusability, and for increasing the performance of propulsion systems.

3. The goals and objectives of the international team are to determine the gaps in technology that need to be closed for LOx/Methane to be used in human exploration missions in cis-lunar, lunar, and Mars mission applications with an emphasis on near term lunar lander applications with extensibility to Mars.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

The article discusses the technology gaps in LOx/Methane propulsion systems for human exploration missions in cis-lunar, lunar, and Mars mission applications. The International Space Exploration Coordination Group (ISECG) formed two technology gap assessment teams to evaluate topic discipline areas that had not been worked at an international level to date. The participating agencies were ASI, CNES, DLR, ESA, JAXA, and NASA.

The article provides a detailed analysis of the advantages and disadvantages of LOx/Methane propellants and their application to in-space propulsion systems such as service modules, landing or descent vehicles, and ascent stages. It also discusses the potential use of LOx/Methane propulsion for access to space due to its low cost, high thrust and applicability to reusable engines for 1st stages of launchers.

However, the article has some biases towards LOx/Methane propulsion systems as it does not provide a balanced view of other alternative propulsion systems. It also lacks evidence for some claims made regarding the performance of LOx/Methane compared to current earth storable propellants for human scale spacecraft.

The article also fails to explore counterarguments against the use of LOx/Methane propulsion systems such as their potential risks and limitations. It only focuses on their advantages without considering any possible drawbacks or challenges that may arise during their implementation.

Overall, while the article provides valuable insights into the technology gaps in LOx/Methane propulsion systems for human exploration missions, it lacks a balanced view and fails to consider all aspects related to this technology.

# Topics for further research:

* Limitations of LOx/Methane propulsion systems for space exploration
* Alternative propulsion systems for human scale spacecraft
* Risks associated with LOx/Methane propulsion systems
* Challenges in implementing LOx/Methane propulsion systems for space missions
* Comparison of LOx/Methane with other propellants in terms of performance and cost
* Environmental impact of LOx/Methane propulsion systems in space exploration.

# Report location:

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