

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)  
Poster Session (P)

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## ION OR CHARGED BOUNDARY LAYER DEVICE OR SYSTEM .

**Abstract**

Augments presently available technology and complements as an integrated add on .

- This technology is aimed at reducing the skin friction and aerodynamic drag on the space vehicle while it is moving inside earth's atmosphere .
- Main way how this can be achieved is by using the technology presently being used in "Ion propulsion" technology .
- This charged particles of surrounding air close to the vehicle / craft outer body would form a non cohesive layer of medium , thus preventing the free interactions between skin of body of craft and air molecules .
- At the leading or/and at specific locations of the vehicle or craft this technology related mechanism can be deployed and be controlled via on board computer electronics .

**Main Advantages :**

- Streamlined performance .
- If Craft is re-usable then good level of reduction in skin damage .
- Many of the high temperature and boundary layer problems is avoided .
- Vibrations due to shockwaves can be to a level maintained , thus the cargo / passenger damage or discomfort is under control to certain degree of operational limits .
- Safety and reliability of onboard systems are ensured to high level operational performance .

**Conclusion :**

Its highly advantageous to use this technology on existing space crafts or vehicles because it will show high improvement in operational overall performance . For future development of this technology and at the earliest deployment, this technology should be tested on conventional vehicles or crafts .