

# Applied research on space waste disposal

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World Space  
Week ASSOCIATION

# World Space Week 2022

Under the banner of space and sustainability

## How can we clean satellite orbits?

research aims :

- Maintaining the continuity of space research and technology
- Keeping satellite orbits around the Earth clean
- Reducing the cost of maintaining satellites by reducing the chances of them colliding with foreign objects

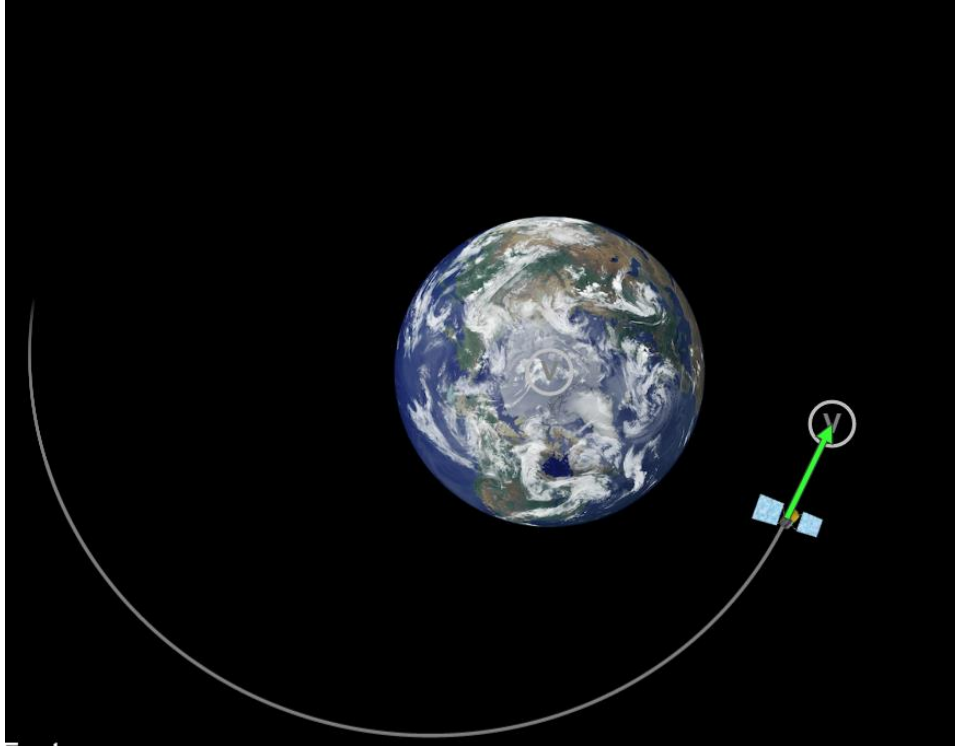
- Quoting the Euronews news agency, the Italian Space Agency has detected about 18,000 strange objects due to the debris of the old satellites, which leads to their collision with the rest of the healthy satellites and causing them to become damaged.
- So, for the continuation of space technology and research, we must clean the orbits of the satellites from the remnants of the destroyed satellites and allow others to work.



## خطوات نحو الحل

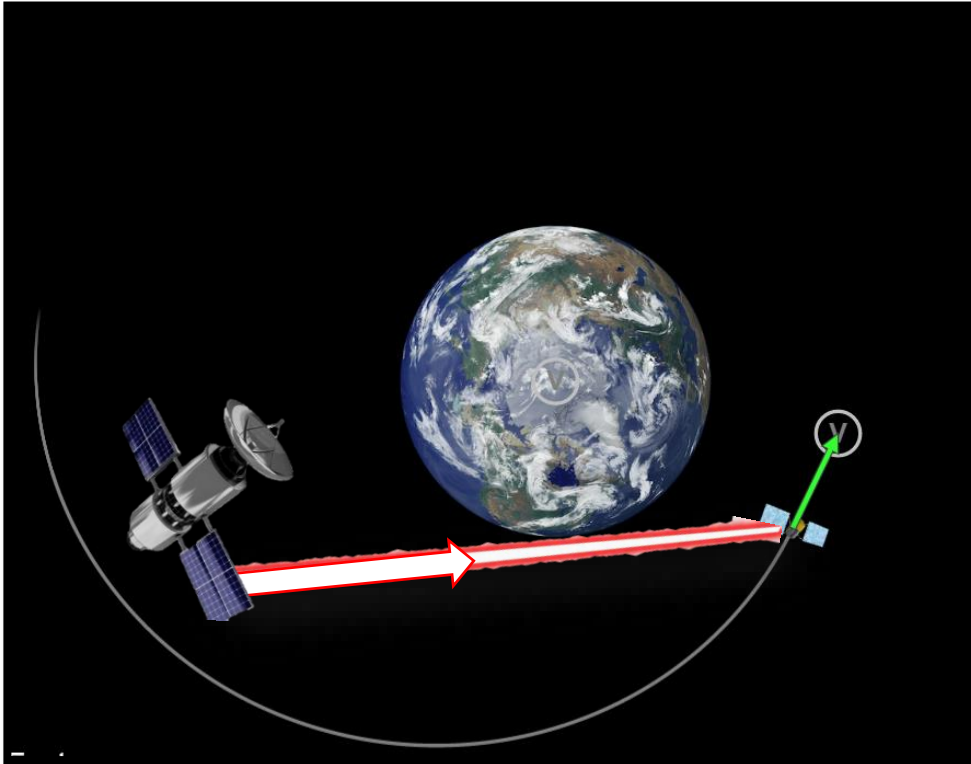
أولا : دراسة حركة الحطام حول الأرض :  
بما أن حطام الأقمار الصناعية لا تخضع لتوجيه بشري فهي تتحرك تحت تأثير قوتين  
القوة الطاردة المركزية والتي سببها القصور الذاتي للحطام باتجاه الخارج  
قوة الجاذبية الأرضية

وعليه بمجرد أن يخرج الحطام بعيدا عن  
تأثير جاذبية الأرض فسينطلق للفضاء الفسيح  
من تلقاء نفسه



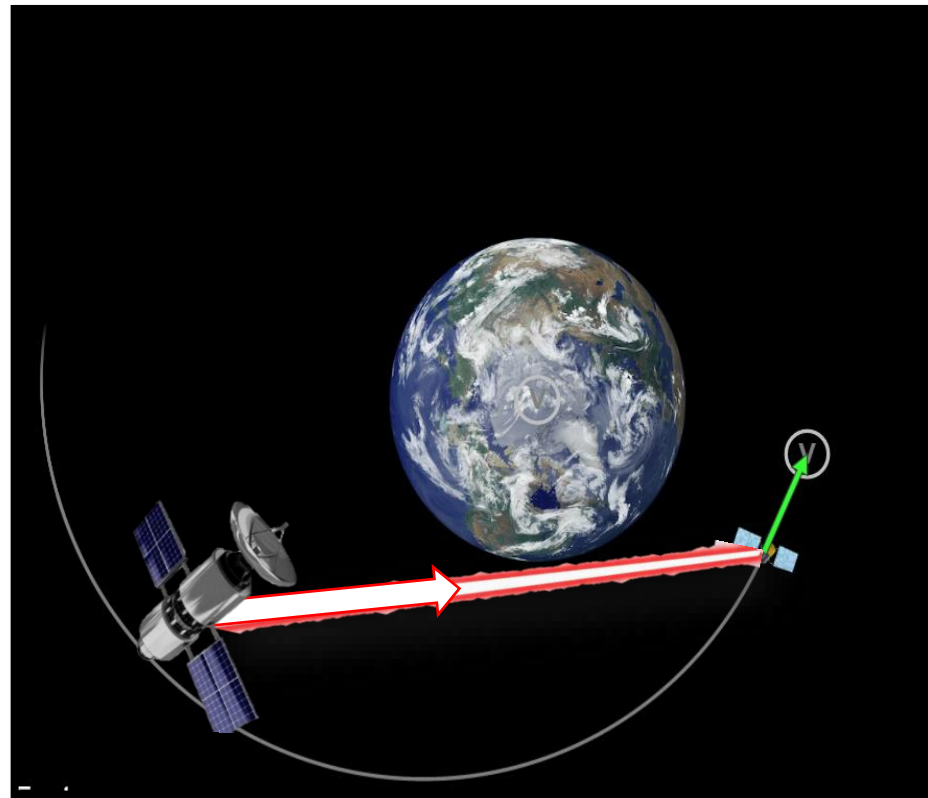
## Suggested solution to this problem

By studying the movement of debris, we propose the work of a space drone that works with an ion engine and has a laser cannon.



## The way it works

1. When we spot an object of debris, we aim at it a laser beam to push it as it travels outward in the same direction as it is moving
2. The thrust will move it into orbit spiral out far from Earth's field



## The expected problems of this idea

- Pieces of debris driven as they exit may collide with intact satellites, thus potentially crashing them
- The solution is to use the laser in the orbits farthest from the Earth first, then the closest orbits



## Project conclusion

There is no room for the sustainability of space research except by keeping space clean for future generations.



- Research sources :
- Wikipedia: <https://en.wikipedia.org/>
- Ars technisa <https://arstechnica.com/>
- Popular science <https://www.popsci.com/>
- NASA's Space Debris Program Office:
- <https://www.orbitaldebris.jsc.nasa.gov/>
- [https://www.youtube.com/watch?v=rbQ7aGT6CAU&ab\\_channel=euronews%28%D8%B9%D{D{D}0%D8%B1%D8%A8%D{A%29}}](https://www.youtube.com/watch?v=rbQ7aGT6CAU&ab_channel=euronews%28%D8%B9%D{D{D}0%D8%B1%D8%A8%D{A%29}})