



# Applied research on nuclear energy in space

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Under the banner of space and sustainability

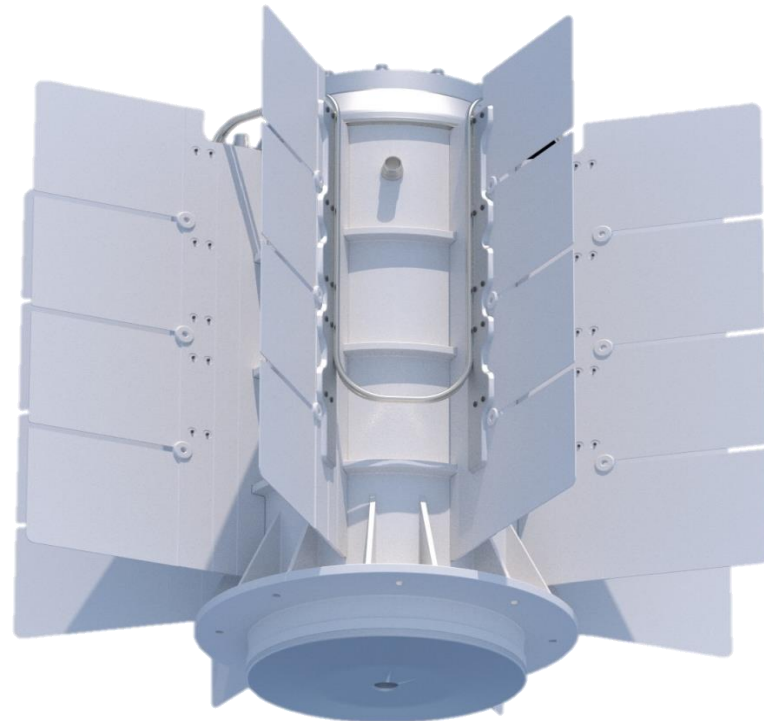
## research aims

- Employing nuclear energy in space technology
- Maintaining the continuity of space research and technology
- Reduce the cost of periodic space travel
- Employing artificial intelligence technology in satellite maintenance



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- Nuclear energy is one of the clean energy sources, and what distinguishes it from solar energy is that it is available all the time as long as the reactors are operating.
- Therefore, we can rely on it in the absence of sunlight or its weakness at great distances.
- In order to reduce the costs of launching a space shuttle or even satellites from Earth, we can launch AI-powered interplanetary nuclear plants that can produce and maintain satellites and then test and track them during their journey.



- Of the projects implemented with the same idea, the generator Multitasking Radioisotope Thermoelectric (MMRTG).

It is a type of thermoelectric generator for radioactive isotopes that

Developed for NASA space missions such as a science lab

Mars (MSL)

- The MMRTG design is capable of operating in the vacuum of space And in the atmospheres of planets, such as the surface of Mars. goals included MMRTG's own design ensures a high degree of Safety, improved energy levels over a lifetime no Under 14 years old, underweight.
- The MMRTG is designed to produce 125 watts of electrical power at the start of the mission, it drops to about 100 watts after 14 years. With a weight of 45 kg, the MMRTG provides about 2.8 W/kg of Electrical energy at the beginning of life.
- This generator works inside the planets, but the idea of the space station . The nuclear that we propose operates in the orbits of planets, especially the distant ones about the sun.



## What about the future

Nuclear space stations, like solar power stations, will be large in size, and there will be a room for astronauts who will check every two decades for the safety of robots and the entire station. The nuclear station in space will work like gas stations on Earth.



## Some countries think the same idea, but the goal is different

Russia plans to launch a nuclear-powered spacecraft to the Moon, then Venus, and then Jupiter. The Russian Federal Space Agency, Roscosmos, announced that its space tug - the designation for a spacecraft that carries astronauts or equipment from one orbit to another - is scheduled to launch on an interplanetary mission in 2030. The spacecraft's power unit, named Zeus to produce the power needed to propel heavy payloads into deep space. It's basically a mobile nuclear power plant.





- [https://ar.wikipedia.org/wiki/%D8%B7%D8%A7%D9%82%D8%A9\\_%D9%86%D9%88%D9%88%D9%8A%D8%A9\\_%D9%81%D9%8A\\_%D8%A7%D9%84%D9%81%D8%B6%D8%A7%D8%A1](https://ar.wikipedia.org/wiki/%D8%B7%D8%A7%D9%82%D8%A9_%D9%86%D9%88%D9%88%D9%8A%D8%A9_%D9%81%D9%8A_%D8%A7%D9%84%D9%81%D8%B6%D8%A7%D8%A1)
- <https://www.alhurra.com/tech/2020/11/16/%D9%86%D9%82%D9%84-%D9%85%D9%81%D8%A7%D8%B9%D9%84-%D9%86%D9%88%D9%88%D9%8A-%D8%A7%D9%84%D8%A3%D8%B1%D8%B6-%D8%A7%D9%84%D9%81%D8%B6%D8%A7%D8%A1-%D8%AE%D8%B7%D9%88%D8%A7%D8%AA-%D9%86%D8%A7%D8%B3%D8%A7-%D9%84%D9%84%D8%B9%D9%88%D8%AF%D8%A9-%D8%A7%D9%84%D9%82%D9%85%D8%B1>
- <https://nasainarabic.net/main/articles/view/russia-plans-to-launch-a-nuclear-powered-spacecraft-to-travel-from-the-moon-to-jupiter>
- <https://www.behance.net/gallery/14207437/Multi-Mission-Radioisotope-Thermal-Generator-MMRTG>
- <https://middle-east-online.com/%D9%85%D8%AD%D8%B7%D8%A9-%D8%A7%D9%84%D9%81%D8%B6%D8%A7%D8%A1-%D8%A7%D9%84%D8%AF%D9%88%D9%84%D9%8A%D8%A9-%D8%AA%D8%B1%D8%AD%D8%A8-%D8%A8%D8%A7%D9%84%D8%B3%D9%8A%D8%A7%D8%AD>
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