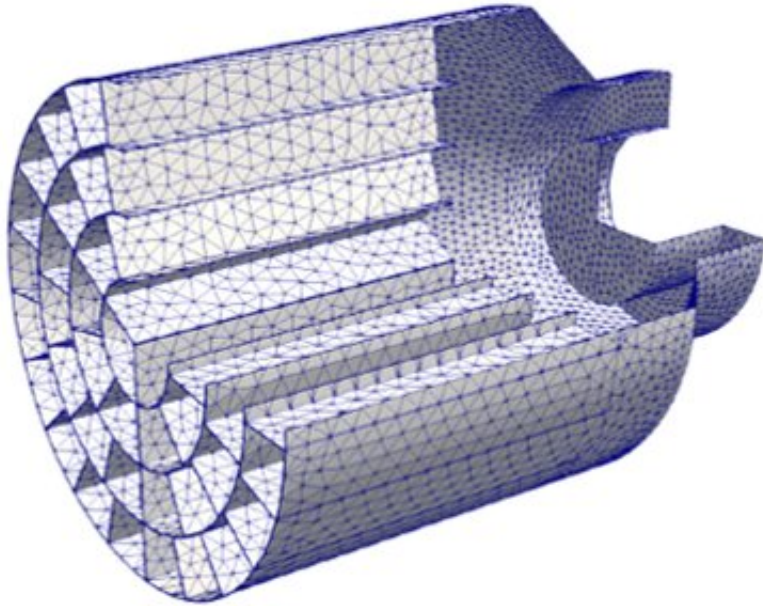


# Image: Letting a satellite breathe

July 22 2020

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Credit: VKI

This air intake collector is designed to harvest sufficient air particles as it skims the top of the atmosphere to fuel an "air-breathing" electric thruster. The aim is to help satellites to overcome atmospheric drag to operate on an ongoing basis in orbits from as low as 180 km to a maximum 250 km altitude.

This ramjet technology having been proven by ESA in principle, such Very Low Earth Orbit, VLEO satellites could provide sharper resolution Earth-observing imagery and low-latency communication links in the

future.

The challenge is to design a sufficiently efficient air intake system to collect as many of the scarce but highly-energetic air molecules found at the top of the atmosphere as possible, to fuel an electric thruster to compensate for the air drag that would otherwise pull a [satellite](#) down to Earth in a matter of weeks. This was the goal of an ESA project with Belgium's Von Karman Institute and Politecnico di Milano, developing sophisticated software models to qualify an air intake-collector design as well as manufacturing a metal prototype.

Provided by European Space Agency

Citation: Image: Letting a satellite breathe (2020, July 22) retrieved 27 April 2024 from <https://phys.org/news/2020-07-image-satellite.html>

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