ALPHA IMPULSION

Pioneering mankind’s full potential – on Earth, in orbit, and beyond

LOW EARTH ORBIT

Access to space is evolving towards **low-cost large rideshare flights (10+ tons) to LEO** (Starship, Neutron, Ariane 6, New Glenn, Gaia, etc..)

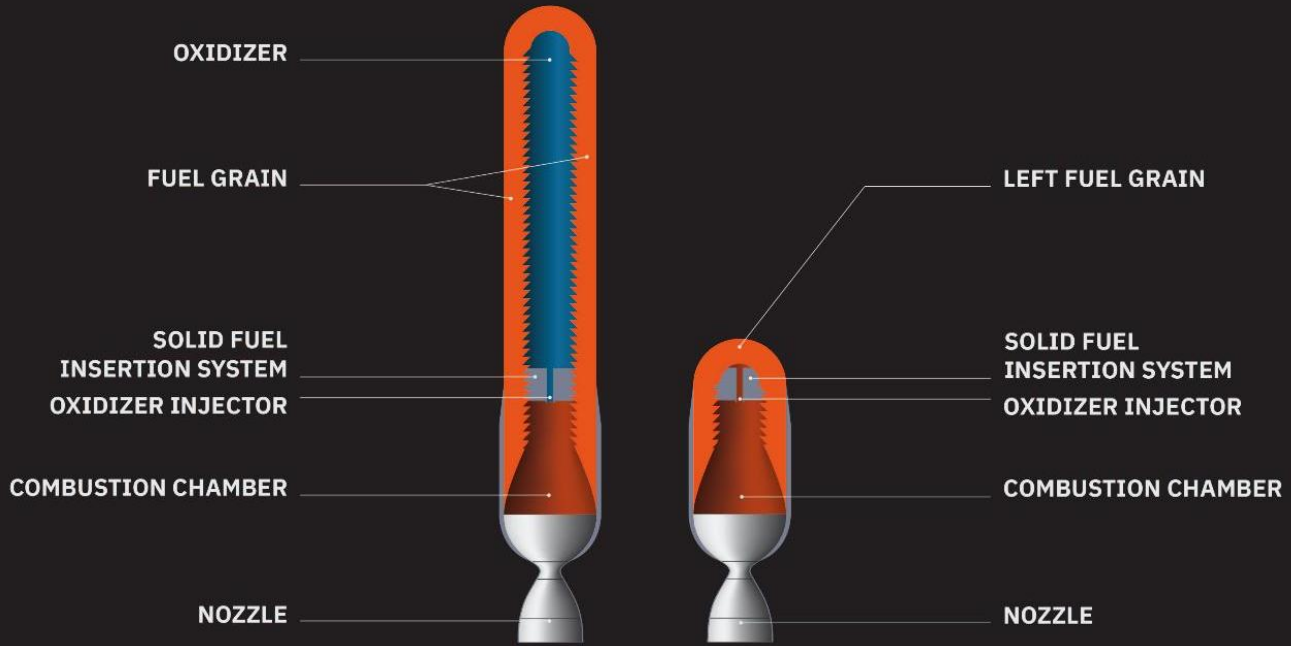
Those able to perform fast and low-cost maneuvres in space will control access to **MEO**, **GEO**, **Moon**, **Mars** and **Deep Space**

Moving from LEO to other orbits is a market opportunity worth **$5.9 Bn** by 2030 and growing at a CAGR of 12.4%

WE NEED INNOVATIVE IN-SPACE PROPULSION SOLUTIONS

HYBRID AUTOPHAGE PROPULSION

A fuselage made of solid fuel replaces tanks and structure of the engine:
Zero debris, 40% more payload capacity, 80% reduced cost



AUTOPHAGE PROPULSION

Sustainable technological revolution with **dual use applications**

Storable & flexible

Long-term **storability**
Modular design
Multiple **re-ignition**

Non-Explosive
Reduced Logistics
Simpler Operations

Easy & cheap to operate

European & resilient

Reduced Lead time
ITAR-FREE
Fast production

No debris
Green propellant
66% less emissions

Sustainable & safe

A GROUND-PROVEN TECHNOLOGY

We fired the largest autophage engine in the world

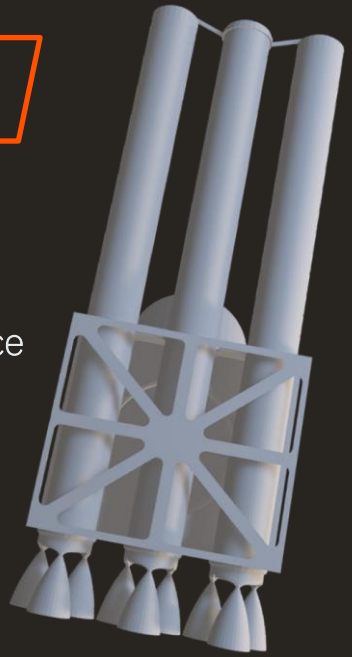
Multiple Applications

High thrust, storable and autonomous propulsion for High ΔV applications

In-space propulsion

Commercial product

- Commercial engine for kick-stages, OTVs and Deep-space missions.
- **1st mission in Q4 2027**



Micro-launcher & Reactive Launch

Longer term, national interest

- From ground to orbit in 72 hours
- Storable, direct payload integration, compatible with mobile platforms.
- Low-cost manufacturing
- IOD in 2030

OPAL: Any Orbit, Any Time

Enabler for in-orbit logistics, Orbital Transfer Vehicles, Kick-stages

AUTONOMOUS ORBIT RAISING
low cost access to MEO and GEO

APOGEE ENGINE
for launch vehicles

RAPID MANEUVERING
Avoid or inspect potential threats

DEEP SPACE MISSIONS
starting from LEO

1° Mission – LEO to LLO funded by UKSA

In 2025 the UKSA funded the PDR of an Economical Transfer Vehicle

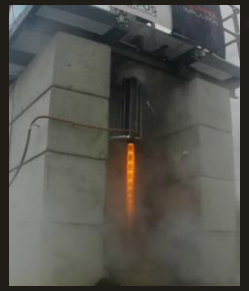
- Direct orbital transfer from LEO to Low Lunar Orbit.
  A single OPAL autophage engine will provide 4500 m/s of delta-V to propel a 50kg platform to LLO in 3 days.

Meridian Space Command (UK) is our 1st customer and platform developer.

- A commercial agreement for the first LLO mission has been signed with Space Kidz India. Mission to leave for IOD of the platform in Q4 2027

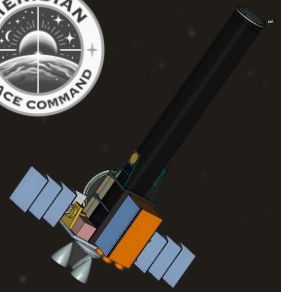
OPAL DEVELOPMENT

Funding to enable space qualification and vacuum testing



Combustion chamber Hot-fire test (HTP)

1st ignition autophage Engine (HTP – HDPE)



IOD/IOV And 1st commercial mission

Integrated engine version

Vacuum Testing

COMMERCIALIZATION

AMBER
Proof of Concept

OPAL
In-space propulsion
1st commercial product

2023 | 2024 | 2025 | 2026 | 2027 | 2028

OUR SPECIAL RECIPE

Team and partners

SPACE BUSINESS CATALYST by Thales Alenia Space

Takeoff
L'acceleratore Aerospace e Advanced Hardware della Rete Nazionale CDP

cnes
CENTRE NATIONAL D'ÉTUDES SPATIALES

AIPAS

GIFAS

esa BUSINESS INCUBATION CENTRE

ALLIANCE NEWSPACE

aerospace valley

CIRA
Centro Italiano Ricerche Aerospaziali

9 FTE (Engineering & Commercial)
5 nationalities over **Toulouse and Turin**
Committed to develop a disruptive technology

ALPHA IMPULSION

Pioneering mankind’s full potential – on earth, in orbit, and beyond

Join us in this adventure

vincenzo.mazzella@alpha-impulsion.com