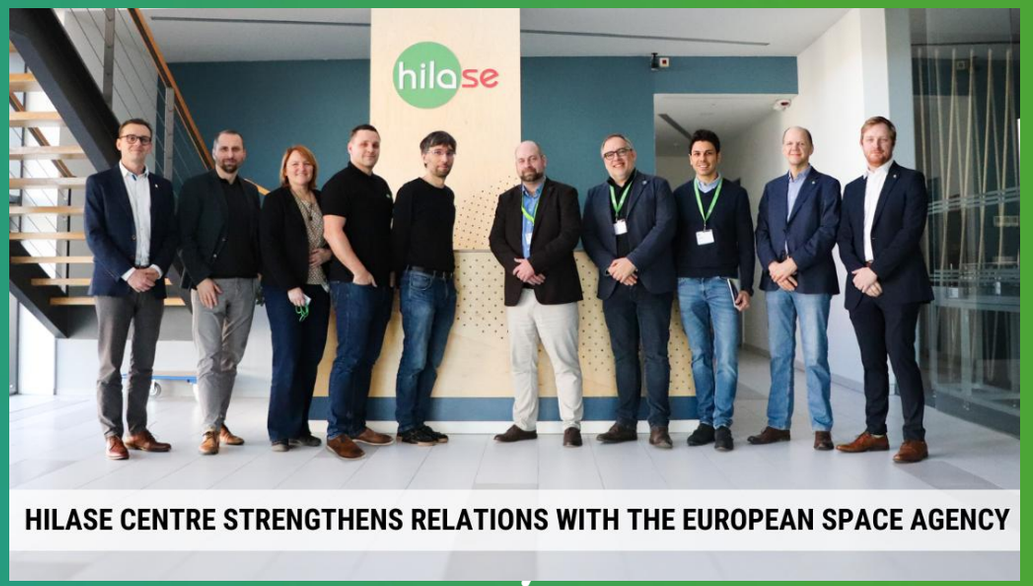
Lasers in Space:

Powering the Future of Communication, Navigation, and Exploration



Conctact Expert:
Jan Vanda, jan.vanda@hilase.cz, +420314007747
Team Lead for Space Laser Technologies
Address: Za Radnicí 828, 252 41 Dolní Břežany

Out offer: Laser Communications and Applications in Space

- **Laser communications** – Using laser beams to send data between satellites and Earth very **quickly** and **securely**.
- **Laser ablation / Laser momentum transfer** – Using lasers **to push** or **move objects in space**, like removing debris or adjusting satellite orbits.
- **Advanced laser sources** – **New types of lasers** that are more powerful, efficient, and reliable.
- **Adaptive optics** – Technology that adjusts laser beams in real-time
- **LIDAR** – A laser-based system to map surfaces in 3D, useful for exploring asteroids, ect.

Ph.D. Jan Vanda, jan.vanda@hilase.cz +420 314 007 747

Out offer: Laser Communications and Applications in Space

- **Laser 3D printing** – Building parts for space missions layer by layer using lasers and special materials.
- **Lasers for sustainable space** – Applying laser technology to help keep space clean and safe, such as clearing space junk.
- **High-energy laser propagation through the atmosphere** – Studying how powerful laser beams travel through air and how to keep them focused.

LaserSAT Project: Laser for Better Space Communication

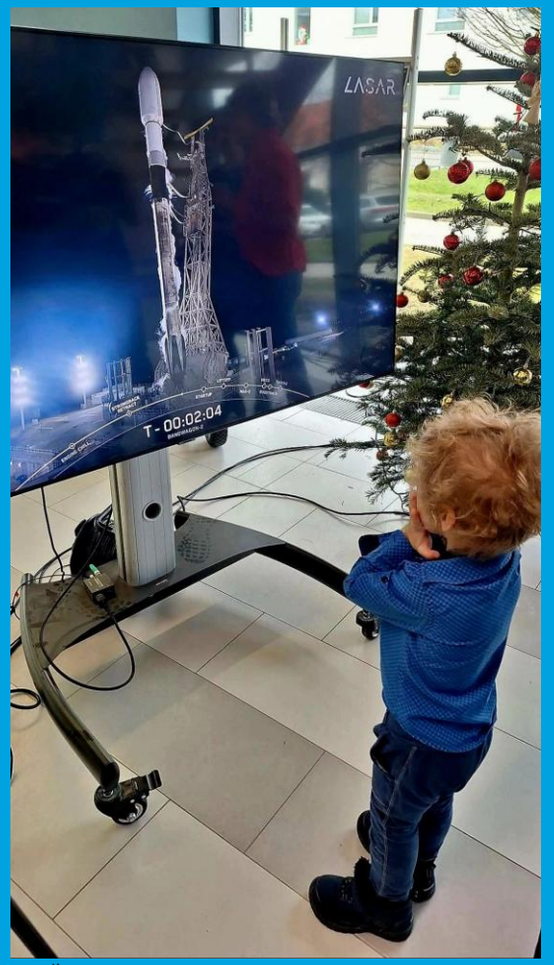
HiLASE Centre, Crytur, and Czech Technical University have developed a small but powerful laser for satellites, supported by ESA. This **2.1 µm** laser has improved long-distance space communication by offering **faster** and **more stable data links**.

What HiLASE Does:

- Builds and tests the laser in real-world conditions
- Prepares key optical parts
- Measures how well the laser signal travels

Why It's Great:

- **Works through clouds:** Communicates even without clear skies
- **Eye-safe:** Safe to use around humans
- **Small & light:** Fits easily on small satellites
- **Energy-saving:** Uses less power than usual lasers



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Advanced Laser Solutions for Aerospace

🔬 Role in F-35 Supply Chain Development Project

- HiLASE, a unique laser research center of the Institute of Physics (CAS), is contributing its expertise in:
- Laser Surface Enhancement
  – Application of high-energy laser technologies for surface treatment of aerospace components.
- Advanced Materials Processing
  – Supporting qualification of next-gen manufacturing methods including laser-based finishing of 3D-printed parts.
- Industrial-Scale Innovation
  – Bridging scientific excellence with industry needs to develop certified processes for the F-35 exhaust screen component.
- 🌎 Strategic Goal:
  Enable Czech industry to enter the Lockheed Martin F-35 global supply chain by 2029 through certified innovation.

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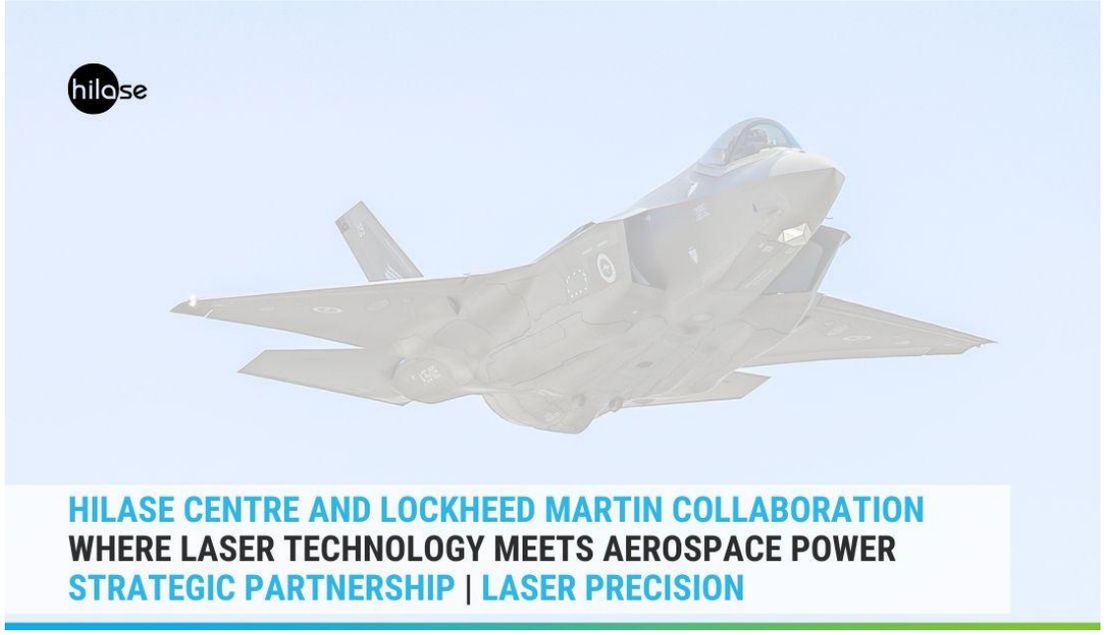

Dear Potential Customers,
please contact us on:
jan.vanda@hilase.cz
or +420 314 007 747

Thank you for your attention!

Anna Ruscak