Mehr Licht!
More Photonics for Intelligence

#D12

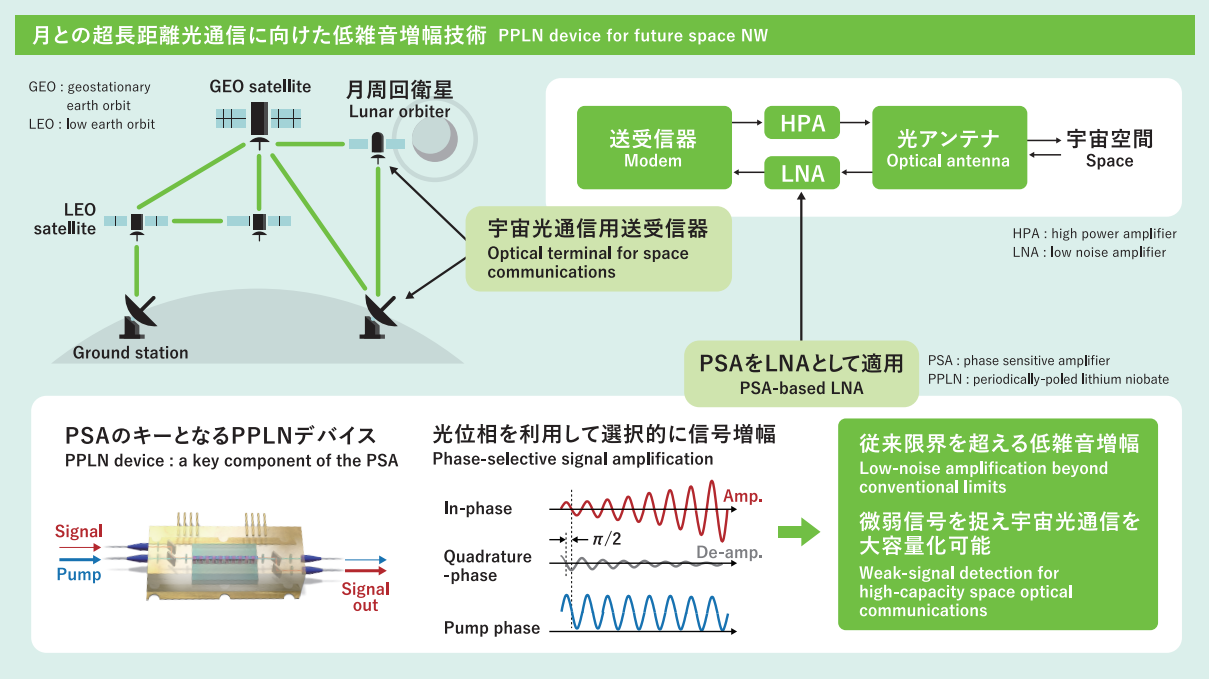
#Resilience#Safety and Security

Low-Noise Amp for Lunar Optical Links

Low-noise amplification boosts sensitivity and capacity in space links

Technical Challenges & Goals

As space utilization expands, higher-capacity space optical communications are increasingly needed. NTT's unique PPLN-based ultra-low-noise optical amplification technology enables the detection of weak optical signals, contributing to higher-capacity communications.



Key Technologies

Core Technologies

- PSA using NTT's high-efficiency, low-loss PPLN devices
- Phase-synchronized amplification achieves a sub-3-dB noise figure for weak-signal detection

Key Differentiators

- Achieved a world-leading noise figure of 0.7 dB with a PPLN-based PSA
- Low-noise reception enables high capacity without higher-power transmission or larger antennas

Use Cases

Aerospace & Defense

High-capacity optical communications connect lunar orbiters with Earth. High-resolution video and large volumes of exploration and observation data can be rapidly transmitted to Earth, supporting future lunar exploration and development.

Exhibitors
Device Technology Labs., NTT, Inc.

External Partners
Japan Aerospace Exploration Agency

Related Links
https://group.ntt/jp/newsrelease/2019/11/05/191105c.html

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