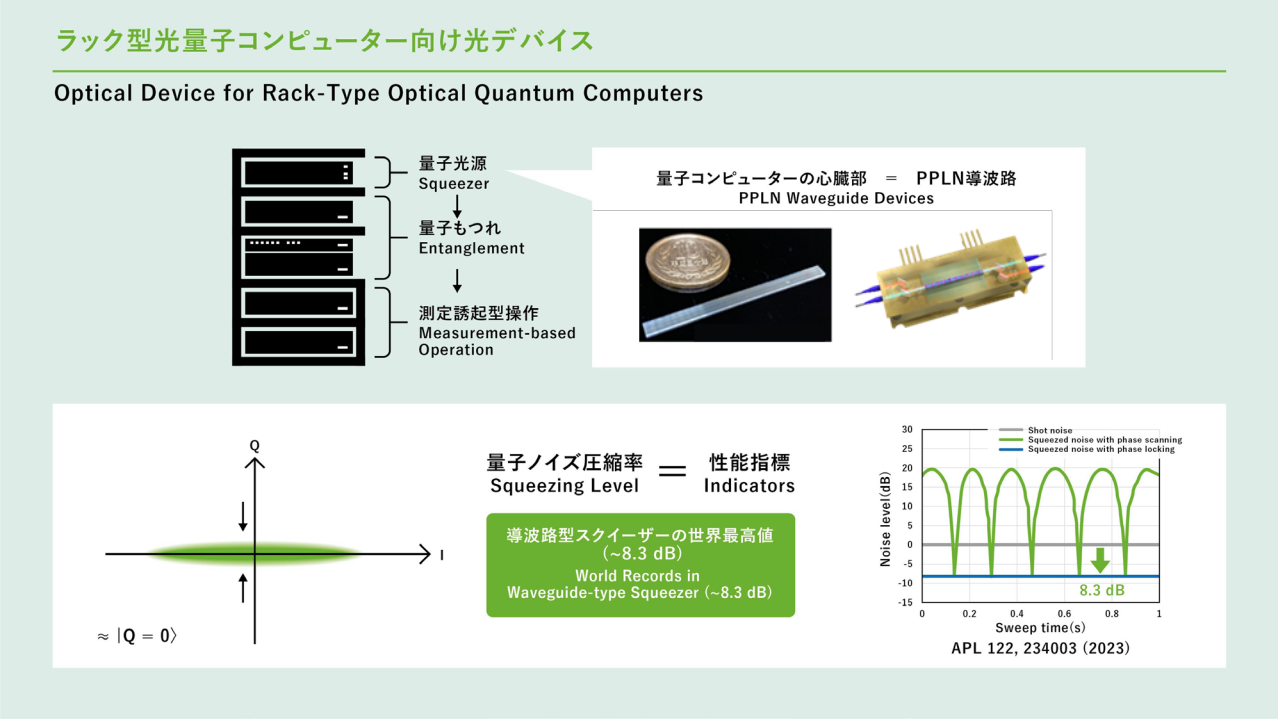
Enabling ultrafast large-scale optical quantum computing using our PPLN waveguide module

Device technology for optical quantum computing

Background and Technical Challenges

Generating high-quality quantum light, detecting its states, and handling it with low loss are key challenges in optical quantum computing. Achieving this requires high-precision photonic devices, enabled using advanced microfabrication technologies.



R&D Goals and Outcomes

Leveraging NTT's expertise in high-precision optical device fabrication, we achieve broadband, high-precision quantum-light generation and detection.

Key Technologies

01 Core Technologies

- High-efficiency, low-loss broadband photonic devices fabricated using NTT's unique fabrication methods.
- High-speed quantum detection combining NTT's optical communication expertise.

02 Key Differentiators

NTT's device achieves over 85% quantum noise reduction and sets the global benchmark for broadband waveguide devices. Combining optical communication technology enables record a 63GHz- quantum entanglement generation and detection.

Use Cases	Multi-Industry	**R&D phase**	Research
Technology Schedule	After FY30	**Commercialization Schedule**	After FY30

【Exhibitors】
NTT Device Technology Laboratories

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