We are conducting research on innovative space-division-multiplexing technology and multi-level modulation/demodulation technology to meet the demand of future ultra-large-capacity transmission. By combining these innovative technologies, we have made possible the world's first transmission of 1 Pbit/s per fiber.

**Features**
- **Feature #1**: Higher order multi-level signal transmission and digital coherent receiver technology
- **Feature #2**: Low-loss and low-crosstalk fan-in/fan-out device for splitting 12-core fiber into 12 individual fibers
- **Feature #3**: Low-crosstalk 12-core optical fiber with a newly-developed one-ring structure
- By combining the above technologies, we have demonstrated the world's first ultra-large-capacity optical transmission of over 1 Pbit/s per fiber

* Equivalent to a speed of transmitting 5,000 high-definition two-hour movies in a second

**Application Scenarios**
- For future Pbit/s-class long-haul core optical network

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**Ultra-large-capacity multi-core transmission technologies**

**Space-Division-Multiplexing Technologies for 1 Pbit/s Transmission**

We conducted the world’s first EDFA optical amplified transmission experiment (1988), 1Tbit/s WDM optical transmission experiment (1996), and 1Pbit/s optical transmission experiment (2012), and are leading the research and development of large-capacity optical transmission technology.

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