Our research project is aimed at pioneering a space division multiplexing optical network technology that can combine ultra-high capacity with economic efficiency. The term "Beyond 5G" refers to wireless and mobile technologies, so one might ask, "Why optical networks?" However, more than 99% of the cell phone signals beyond where they reach the base station are transmitted over optical fibers that are stretched around the world.

If "Beyond 5G" aims to achieve 10 times faster speeds and 10 times greater multipoint connectivity than the current state, it is essential to develop technologies to economically construct optical networks with 10 or 100 times the capacity to achieve this end-to-end. The key to this is the idea of "routing at the granularity of optical fiber core," rather than at the granularity of wavelength.

The project team consists of a fiber vendor, a module vendor, am equipment vendor, a telecommunication carrier, and a university, and will vertically integrate their own fiber technologies, optical connection technologies, optical switch technologies, optical node technologies, and optical amplification technologies to pioneer technologies to realize ultra-high-capacity and economical future optical networks.

The project name "PHUJIN" was named after "Fujin," the Japanese god of wind, who controls the flow of the air, with the hope that we, too, will "pioneer technologies that enable the free and unrestricted transport of enormous data flows generated by Beyond 5G communication services using light. We are now working on prototype systems that will work quickly and wash out the challenges.

Aiming to quickly build prototype systems that actually work and identify technical issues, we have built such a testbed and conducted demonstration tests as early as in the second year of the project. Through this kind of speedy R&D, we hope to build world-leading results.