

Licensing Opportunity

Spatial correlation coding for telecommunication

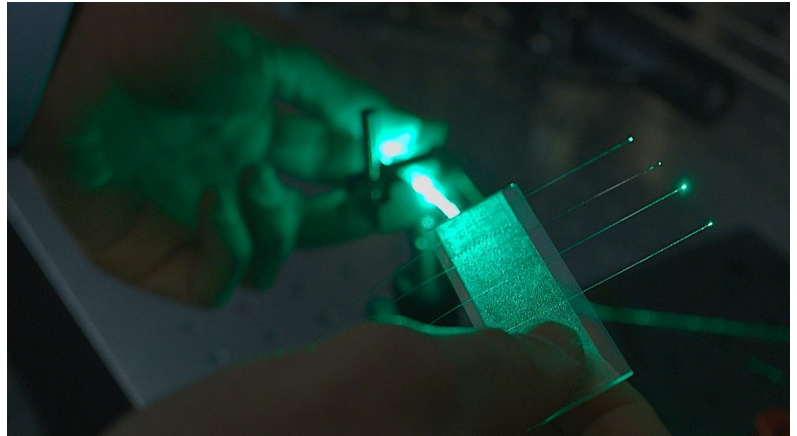
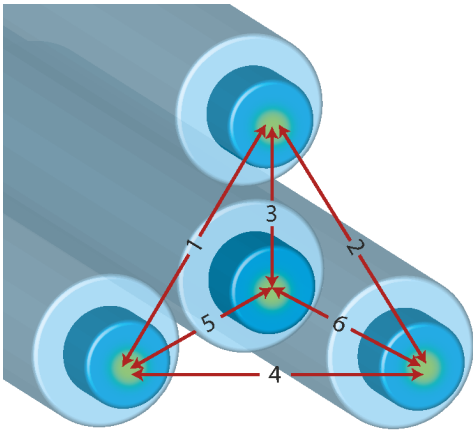


Fig 1 (left) Four transmission channels act as six logical links by encoding the information into the correlation coefficient between each pair of signals. (right) Prototype built and tested with monochromatic laser light.

Summary

This multiplexing technique can be applied to optical fibre networks for increasing the number of available communication channels supra-linearly.

Background

The demand for information bandwidth on the internet is increasing exponentially. Existing techniques like fiber optic communication are reaching their limits. Multiplexing or installing more fibers remain the only degree of freedom to increase information capacity.

Invention

Spatial correlation coding is a multiplexing technique that encodes information into the statistical correlation coefficient between random variables, making a number N of transmission channels appear to be $N(N-1)/2$ logical links (fig. 1). A prototype was built using monochromatic laser light as the signal source, bundled glass fibre optics as transmission channels and a camera for fringe pattern analysis. The proof-of-principle experiment with coherent light was successful. In theory, spatial correlation coding will also work with incoherent light.

Features & Benefits

- New type of multiplexing
- Additional communication channels scale supra-linearly with the number of physically available channels
- Protects against data tapping

Fields of Application

- Data security
- Data transmission

Patent Status

- Patent pending

Technology Readiness Level



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Reference: 2018-113
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