Room B (Grand Ballroom 2), 2F	Chair: Miguel Gonzalez-Herraez (University of Alcala)
We2B	July 1 (Wed), 2026
Multimode & Multicore Fibers	13:15-14:45

We2B-1 **13:15-13:30**

Development of Ge-Doped Low-Loss Air-Gap 4-Core Multicore Fiber

Shugo Takeuchi, Tomoya Akao, Keita Takahata, Osanobu Fukuo, Kazunori Mukasa, Yoshihiro Arashitani
Lightera Japan Co., Ltd.

We successfully developed Ge-doped air-gap 4-core multicore fiber (MCF), satisfied low-loss (< -45 dB/100 km). The optimum structure was realized by the FEM-based design and fabrication-process optimizations.

We2B-2 **13:30-13:45**

Optimizations of Multi-Core Fibers for Short Wavelength and Short Reach Applications

Kazunori Mukasa
Lightera Japan Co., Ltd.

Optimization studies on multi-core fibers in 900nm band for short-reach applications taking HOM effects into account were performed. The effect of additional confinements of HOM for inside cores with 37-core fibers were also investigated.

We2B-3 **Invited** **13:45-14:15**

Spatiotemporal Optical Toroidal Beams in Multimode Fibers

A.V. Komonen[1], N.K. Fontaine[2], M. Plöschner[1], M.M. Morote[1], D.T. Neilson[2], J. Carpenter[1], M. Mounaix[1]
[1]The University of Queensland, Brisbane, [2]Nokia Bell Labs

We experimentally demonstrate the ability to generate tailored spatiotemporal optical beams after propagation through a multimode optical fiber. Specifically, we show optical toroidal beams with different geometrical properties and orbital angular momentum.

We2B-4 **14:15-14:30**

All-Fiber Phase Control for Coherent Beam Combining in Multicore Fiber Systems

Yuanchong Zhang[1], Michalis N. Zervas[1,2], Yongmin Jung[1]
[1]University of Southampton, [2]TRUMPF Laser UK Ltd

We demonstrate an all-fiber phase control technique for coherent beam combination in a four-core multicore fiber. Two-dimensional (2D) fiber bending together with uniaxial transverse compression enables >80% combining efficiency at 1550 nm.

We2B-5 **14:30-14:45**

Development of 7-Core Air-Gap Optical Fiber for Signal and Power Transmission with Enhanced Fiber-Fuse Resistance

Tomoya Akao[1], Shugo Takeuchi[1], Keita Takahata[1], Takeshi Takagi[1], Osanobu Fukuo[1], Kazunori Mukasa[1], Kalipada Chatterjee[2], Toshio Morioka[2]
[1]Lightera Japan Co., Ltd., [2]Technical University of Denmark

We fabricated a 7-core air-gap fiber enabling simultaneous signal and power transmission. The outer cores meet ITU-T G.654 standards with reduced crosstalk, while both center and outer cores show better fiber-fuse resistance than standard SMF.