

FRAUNHOFER INSTITUTE FOR APPLIED OPTICS AND PRECISION ENGINEERING IOF



- 1 19 x 1 Fiber coupler.
- 2 End cap splice.
- 3 CO,-laser process.

Fraunhofer Institute for Applied Optics and Precision Engineering IOF

Albert-Einstein-Straße 7 07745 Jena, Germany

Director Prof. Dr. Andreas Tünnermann

Department Precision Engineering Head of Department Dr. Ramona Eberhardt

Contact

Dr. Thomas Schreiber Phone +49 3641 807-352 Thomas.Schreiber@iof.fraunhofer.de

Dr. Erik Beckert Erik.Beckert@iof.fraunhofer.de

www.iof.fraunhofer.de

FIBER LASER COMPONENTS

Motivation

Scalability of high power fiber lasers is closely linked to new fiber designs. As a consequence, new fiber optical components and processes are also necessary.

Characteristics and Technology

The Fraunhofer IOF Jena develops new joining technologies and processes for fiber optics and its components based on a CO₂-laser. High purity processes without any contaminations for splicing and tapering tasks can be provided.

Application

A CO₂-laser is an efficient tool for manufacturing of different fiber laser components and fiber preparation processes with high precision, purity, and reproducibility:

- Splicing of fibers with similar or different fiber cross-sections
- Tapering of fibers and capillaries
- Collapsing of Photonic Crystal Fibers
- Stripping of coated fiber material
- Shaping of fiber end facets
- Cleaning of fiber tips
- Splicing of special rod type fibers, etc.

Furthermore, pump couplers and beam shaping elements are manufactured. The development of special customized processes and devices are possible.