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Optical Fiber Lasers and Amplifiers. Practical Applications of Fiber-Based Laser Sources

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Message from the Guest Editors

Dear Colleagues,

The development of new fiber structures and new glass matrices (silica-based and non-silica-based, such as tellurite, chalcogenide, and fluoride), the search for new active dopants, as well as the search and optimization of new fiber laser schemes have made it possible to significantly expand the spectral range of available laser sources that are covered, and at the same time, new laser technologies can be implemented. As a result, the global market for fiber laser systems is growing rapidly, and it already reached a value of about USD 3 billion in 2021. From Optech Consulting data, 52% of industrial lasers market in 2021 were fiber-based systems, and to date, the market trend does not indicate that any saturation has occurred. Currently, fiber lasers are key elements of material processing equipment, LIDARs, some medical equipment, telecommunications, and so on. The further development of fiber-based sources, optical fibers, and component bases will allow existing limitations to be overcome, create new possibilities for practical applications, and begin a new era of laser sources.