

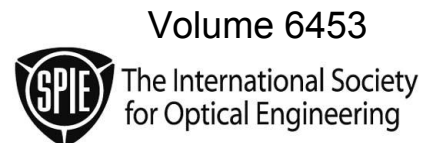
PROCEEDINGS OF SPIE

# ***Fiber Lasers IV: Technology, Systems, and Applications***

**Donald J. Harter  
Andreas Tünnermann  
Jes Broeng  
Clifford Headley III**  
*Editors*

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Feinmechanik (Germany) and Friedrich Schiller Universität Jena  
(Germany)



## Introduction

This volume contains papers submitted for the conference Fiber Lasers IV: Technology, Systems, and Applications held at Photonics West in San Jose, January 22–25 2007. It was the fourth conference in the series, following the earlier conference, Advances In Fiber Lasers held in 2003. This conference has seen both a healthy attendance and growth in participants and is the world's foremost meeting in this field.

It is a very exciting time for fiber laser technology. Last year, the highlight was in technology where one of our invited speakers won the Nobel Prize. This year the highlights were in business where two of our regular contributors went public: SPI lasers and IPG Photonics. IPG Photonics had impressive growth to make a purely fiber laser company become one of the largest laser companies in the world. There was also impressive progress in business for our applications. Intralase, a purely ultrafast laser application in corrective eye surgery, was sold for over \$800 million.

This volume contains a must have collection of papers for those already in the field or entering it. Due to the length of the papers, not only are the latest breakthroughs covered, but also the background leading to the progress is fully discussed. Topics include advanced fiber designs, which allow an increase in fiber nonlinear thresholds; fiber optical components in order to make "all fiber" devices; ultrafast lasers and amplifiers; and coherent and incoherent combination of light. Some of the most detailed discussions in the scientific literature on issues such as photodarkening in doped fibers, and self-focusing limits in optical fibers are presented.

The long lead times of big events such as Photonics West is a problem in the rapidly developing field of fiber lasers, and this year another special session for late breaking developments was held. The session did not disappoint, and included several very exciting new results.

The conference will be held again at Photonics West in 2008. We are expecting a continued expansion thanks to the active community and rapid progress. We will strive to develop the conference to be the first-class showroom the area deserves. In recognition of the future potential of fiber lasers, we are actively working on increasing the involvement of students. The student prize, sponsored by IPG Photonics went to Yoann Zaouter from the University of Bordeaux, France.

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