



Universität Stuttgart  
Institut für Strahlwerkzeuge



## LASER IN DER MATERIALBEARBEITUNG

Forschungsberichte des IFSW

Martin Rumpel

### **Applications of Grating Waveguide Structures in Solid-State Lasers**

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Martin Rumpel

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M. Rumpel  
Applications of Grating Waveguide  
Structures in Solid-State Lasers

# **Laser in der Materialbearbeitung**

## **Forschungsberichte des IFSW**

Herausgegeben von

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Institut für Strahlwerkzeuge (IFSW)

Das Strahlwerkzeug Laser gewinnt zunehmende Bedeutung für die industrielle Fertigung. Einhergehend mit seiner Akzeptanz und Verbreitung wachsen die Anforderungen bezüglich Effizienz und Qualität an die Geräte selbst wie auch an die Bearbeitungsprozesse. Gleichzeitig werden immer neue Anwendungsfelder erschlossen. In diesem Zusammenhang auftretende wissenschaftliche und technische Problemstellungen können nur in partnerschaftlicher Zusammenarbeit zwischen Industrie und Forschungsinstituten bewältigt werden.

Das 1986 gegründete Institut für Strahlwerkzeuge der Universität Stuttgart (IFSW) beschäftigt sich unter verschiedenen Aspekten und in vielfältiger Form mit dem Laser als einem Werkzeug. Wesentliche Schwerpunkte bilden die Weiterentwicklung von Strahlquellen, optischen Elementen zur Strahlführung und Strahlformung, Komponenten zur Prozessdurchführung und die Optimierung der Bearbeitungsverfahren. Die Arbeiten umfassen den Bereich von physikalischen Grundlagen über anwendungsorientierte Aufgabenstellungen bis hin zu praxisnaher Auftragsforschung.

Die Buchreihe „Laser in der Materialbearbeitung – Forschungsberichte des IFSW“ soll einen in der Industrie wie in Forschungsinstituten tätigen Interessentenkreis über abgeschlossene Forschungsarbeiten, Themenschwerpunkte und Dissertationen informieren. Studenten soll die Möglichkeit der Wissensvertiefung gegeben werden.

# **Applications of Grating Waveguide Structures in Solid-State Lasers**

von Dr.-Ing. Martin Rumpel  
Universität Stuttgart



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