

1. Record Nr.	UNINA9910134857103321
Titolo	Multiphoton lithography : techniques, materials and applications // edited by Jurgen Stampfl, Robert Liska, and Aleksandr Ovsiankov
Pubbl/distr/stampa	Wien, Austria : , : Wiley-VCH, , [2017] ©2017
ISBN	3-527-68269-4 3-527-68268-6 3-527-68267-8
Descrizione fisica	1 online resource (409 p.)
Soggetti	Multiphoton processes Lithography Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Cover; Title Page; Copyright; Contents; List of Contributors; Foreword; Introduction; Part I Principles of Multiphoton Absorption; Chapter 1 Rapid Laser Optical Printing in 3D at a Nanoscale; 1.1 Introduction; 1.2 3D (Nano)polymerization: Linear Properties; 1.3 3D (Nano) polymerization: Nonlinear Properties; 1.4 Discussion; 1.5 Conclusions and Outlook; Acknowledgments; References; Chapter 2 Characterization of 2PA Chromophores; 2.1 Introduction; 2.2 Description of Nonlinear Absorption and Refraction Processes; 2.3 Methods for Measurements of NLA and NLR 2.4 Examples of Use of Multiple Techniques 2.5 Other Methods; 2.6 Conclusion; Acknowledgments; References; Chapter 3 Modeling of Polymerization Processes; 3.1 Introduction; 3.2 Basic Laser Polymerization Chemistry and Kinetic Equations; 3.3 Phenomenological Polymerization Threshold and Spatial Resolution; 3.4 Effect of Fluctuations on the Minimum Feature Size; 3.5 Diffusion of Molecules; 3.6 Conclusion; Acknowledgements; References; Part II Equipment and Techniques; Chapter 4 Light Sources and Systems for Multiphoton Lithography; 4.1 Laser Light Sources; 4.2 Ultrashort-Pulse Lasers

4.3 Laboratory Systems and Processing Strategy
4.4 Further Processing Considerations; References; Chapter 5 STED-Inspired Approaches to Resolution Enhancement; 5.1 Introduction; 5.2 Stimulated Emission Depletion Fluorescence Microscopy; 5.3 Stimulated Emission Depletion in Multiphoton Lithography; 5.4 Photoinhibition; 5.5 Inhibition Based on Photoinduced Electron Transfer; 5.6 Absorbance Modulation Lithography; 5.7 Challenges for Two-Color, Two-Photon Lithography; 5.8 Conclusions; Acknowledgments; References; Part III Materials; Chapter 6 Photoinitiators for Multiphoton Absorption Lithography
6.1 Introduction for Photoinitiators for Multiphoton Absorption Lithography
6.2 Centrosymmetric Photoinitiators; 6.3 Noncentrosymmetric Photoinitiators; 6.4 Application of Photoinitiators in Multiphoton Absorption Lithography; 6.5 Conclusion; Acknowledgment; References; Chapter 7 Hybrid Materials for Multiphoton Polymerization; 7.1 Introduction; 7.2 Sol-Gel Preparation; 7.3 Silicate Hybrid Materials; 7.4 Composite Hybrid Materials; 7.5 Surface and Bulk Functionalization; 7.6 Replication; 7.7 Conclusions; References
Chapter 8 Photopolymers for Multiphoton Lithography in Biomaterials and Hydrogels
8.1 Introduction; 8.2 Multiphoton Lithography (MPL) for Photopolymerization; 8.3 MPL Equipment for Biomaterial Fabrication; 8.4 Chemistry for MPL Photopolymerizations; 8.5 Biomaterial Fabrication; 8.6 Biomaterial Modulation; 8.7 Biological Design Constraints; 8.8 Biologic Questions; 8.9 Outlook; References; Chapter 9 Multiphoton Processing of Composite Materials and Functionalization of 3D Structures; 9.1 Overview; 9.2 Polymer-Organic Composites; 9.3 Multiphoton Processing of Oxide-Based Materials
9.4 Multiphoton Processing of Metallic Composites and Materials
