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标题: Terahertz time-domain spectroscopy for monitoring the curing of dental composites
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来源出版物: BIOMEDICAL OPTICS EXPRESS 卷: 3 期: 11 页: 2842-2850 出版年: NOV 1 2012
在 Web of Science 中的被引频次: 0
被引频次合计: 0
引用的参考文献数: 34
摘要: We apply terahertz (THz) time-domain spectroscopy for monitoring the curing process of three different light-curing dental composites. Exact knowledge of the sample thickness is required for a precise determination of the THz dielectric parameters, as the materials exhibit shrinkage when they are cured. We find very small but significant changes of the THz refractive index and absorption coefficient during stepwise light exposure. The changes in the refractive index are correlated with changes in the density of the materials. Furthermore, the refractive index and the sample thickness are found to give the most reliable result for monitoring the curing process of the dental composites. (C) 2012 Optical Society of America
入藏号: WOS:000310644700015
语种: English
文献类型: Article
KeyWords Plus: RESIN COMPOSITES; POLYMERIZATION; MODES; CURE; CONVERSION; ENAMEL; DEPTH
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出版商: OPTICAL SOC AMER
出版商地址: 2010 MASSACHUSETTS AVE NW, WASHINGTON, DC 20036 USA
Web of Science 类别: Biochemical Research Methods; Optics; Radiology, Nuclear Medicine & Medical Imaging
研究方向: Biochemistry & Molecular Biology; Optics; Radiology, Nuclear Medicine & Medical Imaging
IDS 号: 031MI
ISSN: 2156-7085
29 字符的来源出版物名称缩写: BIOMED OPT EXPRESS
ISO 来源出版物缩写: Biomed. Opt. Express
来源出版物页码计数: 9