

Improved fiber probe for laser tissue ablation with integrated distributed temperature sensor

Yu Liu, Riccardo Gassino, Hao Yu, Andrea Braglia, Alberto Vallan, Guido Perrone, [Daniele Tosi](#)

- [School of Engineering](#)

Abstract

The paper presents a new all-fiber probe for laser induced thermal ablation of solid tumor cells that integrates a beam delivery fiber with nanostructured surface to shape the laser irradiation pattern and a chirped grating to allow real-time monitoring of the temperature profile. A theoretical model of the sensor to study the temperature profile recovery algorithm and experimental validations using phantoms are discussed.

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