Abstract Submitted
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**Measurement of refractive index distribution of biotissue by scanning focused refractive index microscopy**[1] QING YE, TENGQIAN SUN, JIN WANG, XIAOWAN WANG, ZHICHAO DENG, WENYUAN ZHOU, CHUNPING ZHANG, JIANGUO TIAN, Nankai University — A novel scanning focused refractive-index microscopy (SFRIM) technique are presented. With a focused laser serves as the light source, we combine the derivative total reflection method (DTRM), microscopy and the scanning technique together to obtain the refractive-index profiles (RIP) of objects. The refractive index (RI) accuracy is 0.002. The central spatial resolution of SFRIM achieves *1* $\mu m$, smaller than the size of the focal spot. Results of measurements carried out on cedar oil and a gradient-refractive-index (GRIN) lens agree well with theoretical expectations, thereby verifying the accuracy of SFRIM. Refractive index distribution of biotissue are measured by this microscopy. The use of SFRIM opens up possibilities for RIP measurement in many applications, including optical waveguides, photosensitive materials and devices, the study of the photorefractive effect, and RI imaging in biomedical fields.

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