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[Image PDF (925K)] [References]

Basic Study on Synthesized Light Source for Optical Coherence Tomography

Manabu SATO[1)], Ichiro WAKAKI[1)], Keiichi URUSHIYAMA[1)], Yuuki WATANABE[1)] and Naohiro TANNO[1)2)]

1) Graduate Program of Human Sensing and Functional Sensor Engineering, Graduate School of Science and Engineering, Yamagata University Yonezawa
2) Japan Science and Technology Corporation, Regional Joint Research Project of Yamagata Prefecture

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Abstract: We have studied on the light intensity ratio of synthesized light source (SLS) for the improvement of spatial resolution of optical coherence tomography (OCT). SLS consists of two LEDs with wavelength 691 nm, spectral width 99 nm and 882 nm, 76 nm. The small imaging interferometer also consists of plan-convex lens of focal length 6 mm and diameter 6 mm, beam splitter and reference mirror with PZT. The axial resolution was measured at 1.2 μm with the side lobe intensity 42 % on the condition of intensity ratio of 1:0.5. The irradiated power was 18 μW. This axial resolution was 57 % compared to the axial resolution using a single LED. The image of test pattern was measured using the phase shift method and two lines with the interval of 9.8 μm were clearly measured. The lateral resolution was calculated at 1.1 μm from wavelength and numerical aperture.

Key Words: Optical coherence tomography, Spatial resolution, Synthesized light source

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