Q-switch-pumped supercontinuum for ultra-high resolution optical coherence tomography

In this Letter, we investigate the possibility of using a commercially available Q-switch-pumped supercontinuum (QS-SC) source, operating in the kilohertz regime, for ultrahigh resolution optical coherence tomography (UHR-OCT) in the 1300 nm region. The QS-SC source proves to be more intrinsically stable from pulse to pulse than a mode-locked-based SC (ML-SC) source while, at the same time, is less expensive. However, its pumping rate is lower than that used in ML-SC sources. Therefore, we investigate here specific conditions to make such a source usable for OCT. We compare images acquired with the QS-SC source and with a current state-of-the-art SC source used for imaging. We show that comparable visual contrast obtained with the two technologies is achievable by increasing the readout time of the camera to include a sufficient number of QS-SC pulses.

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