508. Title:Tunable synchronously-pumped fiber Raman laser in the visible and near-infraredexploiting MOPA-generated rectangular pump pulses

Authors:Lin, Dejiao (1); Alam, Shaif-Ul (1); Teh, Peh Siong (1); Chen, Kang Kang (1); Richardson, David J. (1)

Source title:Optics Letters
Volume:36
Issue:11
Issue date:June 1, 2011
Publication year:2011
Pages:2050-2052
Language:English
Document type:Journal article (JA)

Abstract:We report a tunable synchronously pumped fiber Raman laser (SPFRL) in the near-infrared (NIR) and visible wavebands pumped by a pulsed, all-fiber PM 1060nm master oscillator power amplifier (MOPA) and its frequencydoubled output, respectively. The seed was adaptively shaped to deliver rectangular output pulses, thereby enabling selective excitation of individual Raman Stokes lines. Using filtered synchronous feedback of the desired Raman Stokes line, the linewidth of the SPFRL was reduced by a factor of 4 and the extinction ratio of the desired Raman Stokes was improved by more than 3 dB relative to a simple single-pass conversion scheme. A continuous tuning range of 2:2 THz was obtained for each of the Raman Stokes orders in the visible (spanning from green to orange- first to fifth Stokes lines). A larger 5:0 THz tunable range was achieved in the NIR spectral region.