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标题: Processing of optical combs with fiber optic parametric amplifiers

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来源出版物: OPTICS EXPRESS 卷: 20 期: 9 出版年: APR 23 2012

在 Web of Science 中的被引频次: 0

被引频次合计: 0

引用的参考文献数: 20

摘要: Low noise optical frequency combs consist of equally spaced narrow-linewidth optical tones. They are useful in many applications including, for example, line-by-line pulse shaping, THz generation, and coherent communications. In such applications the comb spacing, extent of spectral coverage, degree of spectral flatness, optical tone power and tone-to-noise ratio represent key considerations. Simultaneously achieving the level of performance required in each of these parameters is often challenging using existing comb generation technologies. Herein we suggest and demonstrate how fiber optic parametric amplifiers can be used to enhance all of these key comb parameters, allowing frequency span multiplication, low noise amplification with simultaneous comb spectrum flattening, and improvement in optical tone-to-noise ratio through various phase insensitive as well as phase sensitive implementations. (C) 2012 Optical Society of America

入藏号: WOS:000303989300075

语种: English

文献类型: Article

KeyWords Plus: FREQUENCY COMB; GENERATOR; CONVERSION

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出版商: OPTICAL SOC AMER

出版商地址: 2010 MASSACHUSETTS AVE NW, WASHINGTON, DC 20036 USA

Web of Science 分类: Optics

学科类别: Optics

IDS 号: 941TR

ISSN: 1094-4087

29 字符的来源出版物名称缩写: OPT EXPRESS

ISO 来源出版物缩写: Opt. Express

来源出版物页码计数: 12