Sanjeev Kumar Raghuvanshi, J Laser Opt Photonics 2016, 3:2 (Suppl)
http://dx.doi.org/10.4172/2469-410X.C1.005

Photonic microwave arbitrary waveform generation with adjustable chirp parameter based on remote sensing applications

Sanjeev Kumar Raghuvanshi
Indian School of Mines, India

The objective of this paper deals with various methodologies for generation of photonics microwave waveform using adjustable chirp parameter. In this paper, the research efforts have been focused on the investigation of innovative optical techniques to generating and processing high frequency and large bandwidth (extended from E band to K band with adjustable chirp factor) microwave arbitrary waveforms using advanced Fibre Bragg Grating (FBGs) with single and cascaded Mach Zehnder Modulators (MZM). Photonic generation of microwave arbitrary waveforms based on coherent optical pulse shaping using advanced FBGs is proposed to be studied experimentally and theoretically. Two different methods for photonic microwave arbitrary waveform generation (with single and cascaded MZM configuration) are proposed to be investigated. Advanced FBGs have been employed in the systems as an optical spectral filters and dispersive elements. Different types of FBGs are proposed to be investigated, which have a very important role in the proposed microwave arbitrary waveform generation and processing systems, with the advantages of small size, low loss, low cost, good stability, and high compatibility with other well developed fiber optic devices. Besides it dispersion is one of the major limiting factors for the microwave signal generation in microwave photonics. Theoretically, influence of higher order dispersion parameters on microwave signal generation has been investigated under this talk for the case of single and cascaded MZM configuration. The FBGs have to be incorporated into the proposed systems to achieve microwave arbitrary waveform generation and processing.

Biography

Sanjeev Kumar Raghuwanshi is working as an Assistant Professor in the Department of Electronics Engineering at Indian School of Mines, Dhanbad since March 2010. He has completed Post-doctorate at Instrumentation and Sensor Division, School of Engineering and Mathematical Sciences, Northampton Square, City University, London. He obtained PhD degree in the field of Optics from the Department of Electrical Communication Engineering of Indian Institute of Science, Bangalore, India. He has published more than 200 papers in reputed journals and conferences and serving as an Editorial Board Member of repute.

sanjeevrus77@gmail.com

Notes: