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Multicarrier modulation in optical wireless communications

Abstract: Multicarrier modulation (MCM) technique permits the parallel transmission of data along a number of sub-channels to increase capacity and/or combat channel impairments. This technique is also termed subcarrier modulation and can be configured such that the sub-channels are orthogonal with the nomenclature orthogonal frequency division multiplexing (OFDM). This talk will provide a synopsis of the MCM technique in optical wireless communication systems covering its application in attaining gigabit per second data rate in visible light communication, combating channel adversities (including atmospheric turbulence in free-space optical communications) as well as its implementation challenges and recent advances.

Biography: Dr. Wasiu O. Popoola has first class (Hons.) degree in electronic and electrical engineering from Obafemi Awolowo University, Nigeria, an MSc in optoelectronic and communication systems from Northumbria University at Newcastle upon Tyne, UK and a PhD degree in free-space optical communications also from Northumbria University. During his PhD, he was awarded the 'Xcel Best Engineering and Technology Student of the year 2009'. He is currently a chancellor's fellow at the Institute for Digital Communications and LiFi R&D centre, University of Edinburgh. Previously he was a lecturer in electronic engineering at Glasgow Caledonian University, between July 2012 and Dec. 2014. From March 2010 till June 2012, he was a research fellow in visible light communications at the Institute for Digital Communications, University of Edinburgh.

Popoola has over ten years research experience in optical wireless communications and has authored/co-authored over 50 journal articles/conference papers/patent (see: <http://goo.gl/JdCo3R>). He is a co-author of the book 'Optical Wireless Communications: System and Channel Modelling with MATLAB, published by CRC in 2012, and two other book chapters (one with over 9000 downloads as of Sept. 2014 since its publication in 2010). The PI is an active member of the EU funded 'ICT COST Action IC1101: Optical Wireless Communications - An Emerging Technology'. He was a visiting researcher to the University of Technology, Graz, Austria between 2007 and 2008. He has also served on technical programme committee of several international conferences. Popoola is member of the institute of physics and the IEEE.