

**THE CHINESE UNIVERSITY OF HONG KONG**

Department of Information Engineering

*Seminar***From Coarse Grid to Mini-Grid to Gridless:
How Much can Gridless Help Contentionless in an
Optical Transport Network?**

by

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Abstract

It is widely expected that gridless wavelength assignment can help reduce optical spectrum contention in lightpath routing and wavelength assignment. In the context of a CO-OFDM optical network, we explore how much benefit can be achieved if an optical transport network is ideally operated under a gridless manner. Meanwhile, viewing the fact that many tunable optical components have limited tuning resolutions, we also study a mini-grid case to find how the tuning resolution can affect the performance. A new wavelength and optical spectrum assignment algorithm is developed for the wavelength and spectrum assignments under the gridless and mini-grid cases. Simulation studies indicated that the gridless and mini-grid-based wavelength and spectrum assignment perform much better than the conventional ITU-T grid case. Moreover, the mini-grid case with a certain grid granularity can achieve a performance close to that of the gridless case, which implies that to take full advantage of gridless wavelength assignment, optical components (e.g., tunable lasers and WSS) with certain fine tuning resolutions are sufficient.

Biography

Gangxiang (Steven) Shen is a Professor (特聘教授) with College of Electronics and Information, Soochow University since July 2010. Before he joined Soochow University, he was with Ciena Corporation, Baltimore, MD as a Lead Engineer since October, 2008. From May 2006 to October 2008, he was with ARC Special Research Centre for Ultra-Broadband Information Networks, Department of Electrical Engineering, University of Melbourne, Australia, as an Australian Postdoctoral Fellow (APD) and ARC Research Fellow. He was also a Research Scientist (NSERC Industrial R&D Fellow) with Optiwave Systems Inc. in Canada in 2006. He received a PhD from Department of Electrical and Computer Engineering, University of Alberta, Canada in January 2006. During his PhD program, he was with Network Systems Group of TRILabs. He received an MSc from Nanyang Technological University of Singapore in 1999 and BEng from Zhejiang University in P. R. China in 1997. He was also a Research Associate with Network Technology Research Centre (NTRC) of Nanyang Technological University, and then a Senior Research Engineer with Institute for Infocomm Research (I2R) of Singapore from 1999 to 2001. His major research interests are in optical networks and Green Internet. He has authored and co-authored more than 45 technical papers and/or book chapters. He is a TPC member of many international conferences such as Infocom, Globecom, ICC, and so on. His URL is <http://www.gangxiang-shen.com>.

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