

Declaration of Dan Marom
Petition for *Inter Partes* Review of
Reissue Patent No. RE42,368

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Cisco Systems, Inc.
Petitioner

v.

Capella Photonics, Inc.
Patent Owner

Patent No. RE42,368
Filing Date: June 15, 2010
Reissue Date: May 17, 2011

Title: RECONFIGURABLE OPTICAL ADD-DROP MULTIPLEXERS WITH
SERVO CONTROL AND DYNAMIC SPECTRAL POWER MANAGEMENT
CAPABILITIES

DECLARATION OF DAN MAROM

Inter Partes Review No. 2014-01166

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I, Dan Marom, declare as follows:

I. INTRODUCTION AND QUALIFICATIONS

1. I have been engaged by Cisco Systems, Inc. (“Cisco”) to opine on certain matters regarding U.S. Patent No. RE42,368, hereinafter referred to as the ’368 patent. Specifically, this declaration addresses the obviousness of the ’368 patent in light of the prior art.

B. Education

2. I am an Associate Professor in the Applied Physics Department at Hebrew University, Israel, heading the Photonic Devices Group. I received the B.Sc. Degree in Mechanical Engineering and the M.Sc. Degree in Electrical Engineering, both from Tel-Aviv University, Israel, in 1989 and 1995, respectively, and was awarded a Ph.D. in Electrical Engineering from the University of California, San Diego (UCSD), in 2000.

C. Career Synopsis

3. My 20 year research career in optical communications started during my Master’s degree, where I investigated free-space, polarization rotation based bypass-exchange (2×2) space switches, which later on led to the founding of a start-up company (without my involvement). In my doctoral dissertation I demonstrated real-time optical signal processing using parametric nonlinearities

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applied to spectrally dispersed light, for possible modulation and detection schemes in serial ultrafast communications (tera-baud rate and beyond). From 2000 until 2005, I was a Member of the Technical Staff at the Advanced Photonics Research Department of Bell Laboratories, Lucent Technologies, where I invented MEMS based wavelength-selective switching solutions for optical networks and headed the research and development effort of these solutions. Since 2005, I have been with the Applied Physics Department, Hebrew University, Israel, where I am now an Associate Professor leading a research group pursuing my research interests in creating photonic devices and sub-systems for switching and manipulating optical signals, in guided-wave and free-space optics solutions using light modulating devices, nonlinear optics, and compound materials.

D. Career Milestones

4. I am a Senior Member of the IEEE Photonics Society, and a Member of the Optical Society of America. From 1996 through 2000, I was a Fannie and John Hertz Foundation Graduate Fellow at UCSD, and was a Peter Brojde Scholar in 2006-2007. I currently serve as Senior Editor for IEEE Photonics Technology Letters, handling photonic devices related submissions. Awarded 2014-2015 IEEE Photonics Society Distinguished Lecturer.

E. Detailed Research Activity

5. The following paragraphs describe in more detail some of the research work I have been involved in. Much of this research involves areas of technology that are directly related to the subject matter of the patent at issue in this IPR.

Spectral processing of ultrafast waveforms with parametric nonlinearities:

During my Ph.D, studies (1995-2000), I experimentally developed and theoretically analyzed the operating principles of spatio-temporal wave-mixing arranging, demonstrating time-to-space, space-to-time, time-reversal, temporal and spatial correlators, all based on instantaneous nonlinearities. Select publications in this area include:

- D. M. Marom, D. Panasenko, P.-C. Sun, and Y. Fainman, “Spatial-temporal wave mixing for space-to-time conversion,” *Opt. Lett.*, Vol. 24, No. 8, pp. 563-565, 1999. 44 citations
- D. M. Marom, D. Panasenko, R. Rokitski, P.-C. Sun, and Y. Fainman, “Time reversal of ultrafast waveforms by wave mixing spectrally decomposed waves,” *Opt. Lett.*, Vol. 25, No. 2, pp. 132-134, 2000. 42 citations
- D. M. Marom, D.Panasenko, P.-C. Sun, Y. T. Mazurenko, and Y. Fainman, “Real-time spatial-temporal signal processing with optical nonlinearities,” *IEEE J. of Select. Topics in Quant. Electron.*, Vol. 7, No. 4, pp. 683-693, 2001. 25 citations
- Y. Fainman and D. M. Marom, “Instantaneous imaging and processing of

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