**EoP/Physics Seminar**
**April 11, 2014 – 3:00PM**
**CPC 568**

# Performance enhancement of mode-locked fiber lasers based on unique pulse evolutions at normal dispersion

Bio

Andy Chong received B. S. degrees in Mechanical Engineering and Physics from the University of Texas at Austin in 1996. He received M.S. and Ph.D. degrees in Applied Physics at Cornell University in 2007 and 2008 respectively. His graduate studies were focused on nonlinear ultrafast pulse propagation in mode-locked fiber lasers and amplifiers. He performed his post-doctoral research at Cornell University focusing on multi-dimensional optical solitons and linear light bullets. He is currently an Assistant Professor of the Physics department and the Electro-Optic program at the University of Dayton. His research in mode-locked fiber lasers and their industrial applications is still ongoing. He is also interested in spatio-temporally coupled three dimensional optical wavepackets and their applications.

Abstract

The output pulse energy and duration of mode-locked fiber lasers tend to be limited by excessive nonlinear phase shifts and limited gain bandwidth. Historically, the performance of fiber lasers has lagged behind bulk solid-state based lasers due to such limitations. With unique pulse solutions such as dissipative solitons and self-similar parabolic pulses in normally dispersive optical fiber, the performance of fiber lasers can be greatly enhanced exceeding the performance of mode-locked solid state lasers. Fiber lasers based on these new pulse evolutions offer improved performance with major practical advantages of fiber.

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