Physics Colloquium

Michigan Technological University

Thursday, March 20, 2014
at 4:00 pm
Room 139 Fisher Hall

Asymmetric Wave Transport in Structures with Parity-Time symmetry

Tsampikos Kottos
Douglas J. and Midge Bowen Bennet Endowed Associate Professor Chair of Physics
Wesleyan University

Abstract: We will introduce the notion of Parity-Time (PT) symmetry in classical wave propagation with emphasis in integrated optics and electronics. After that, we will propose new circuitry designs that allow for asymmetric transport in such structures due to interplay of the novel properties of PT-symmetry and non-linearity or gyrotropic elements. Comparison with existing unidirectional elements will be done.

Bio: Dr. Tsampikos Kottos received his PhD in theoretical solid-state physics from the University of Crete in 1997. In 1997 he received a US European Office of Air Force Research and Development Fellowship. During the same year, he received the Feinberg Fellowship and joined the Quantum Chaos group of U. Smilansky at the Weizmann Institute of Science, Israel. In 1999 he moved to Germany as a postdoctoral research fellow in the group of T. Geisel at the Max Planck Institute for Dynamics and Self-Organization in Goettingen. In 2005 he has become an Assistant Professor and in 2011 Associate Professor at Wesleyan University, USA. Dr. Kottos was awarded the 2006 International Stefanos Pnevmatikos Award given biannually to outstanding young researchers in the field of nonlinear phenomena. In 2013 he was appointed the Douglas J. and Midge Bowen Bennet Endowed Associate Professor Chair of Physics awarded by the Wesleyan University to an associate professor that is exhibiting exceptional achievement and evidence of future promise. He is the author/co-author of more than 100 research publications in international peered review journals and had been an invited speaker in more than 80 international conferences/workshops. During the last three years his research focus is mainly on non-Hermitian optics and non-reciprocal light propagation.

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