IEEE Photonics Society (Formerly IEEE Lasers and Electro-Optics Society)
French Chapter/Chapitre Français
Seminar announcement/Annonce de séminaire

Title/Titre: **Photonic test bed of Delay-Coupled oscillator's functionality: Amplitude Death**

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Date : Friday, February 22, 2013 at 2:00 pm/Vendredi 22 février 2013 à 14h.
Location/Lieu: TELECOM ParisTech
Ecole Nationale Supérieure des Télécommunications, CNRS/LTCI
46 rue Barrault, 75634 Paris Cedex 13
Room/Pièce : A310

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Abstract/Résumé:

The semiconductor diode lasers are known to be very sensitive to the external optical perturbations such as, for example, optical self-feedback, optoelectronic feedback, optical injection. When the diode laser subjected to optical injection by another diode laser then the radiation emitted from mutually delay-coupled diode lasers which we have investigated theoretically as well as experimentally are well behaving, well understandable, well classifiable in terms of complex nonlinear dynamics. On the one hand these dynamical instabilities are undesired features and disturb the many applications where one needs the constant stable power but one the other hand they may allow for new methods for secure communications using chaos synchronization. So the systematic study and control of these nonlinear dynamics provides fundamental insight into the underlying physics of the system. On the basis of which one can redesign the device or improve the processing, or simply exploit the dynamical performance of a system to one's advantages. In this sprit, I am going to address the question whether these dynamical behaviors of (i) a coupled diode lasers, (ii) quantum Nanostructures diode lasers can be controlled via Amplitude death and what dynamics one encountered during the route to reach the stable state. Amplitude death is a fascinating coupling induced stabilization phenomena where coupled lasers drive to each others to reach the desired stable state through definite routes.

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