Laser Acceleration and High Field Science: 1979-2009

Séminaire général du Département de Physique de l'École Polytechnique et d'ouverture de la Chaire Internationale Blaise Pascal

The foundation of laser acceleration, its recent scope and future perspective are reviewed. Laser wakefield acceleration has been considered as a possible option for a future high energy collider as well as compact GeV class accelerators for such applications as an injector for X-ray free electron lasers, intra-operative cancer therapy devices, etc. Its demand for relativistic laser fields has spurred and intertwined with the development of ultrafast and intense laser development. The road for the laser acceleration research has not been straightforward, but the recent experimental developments make it possible to witness an accelerated pace of progress. This effort also spawns out not only acceleration of electrons, but also of ions. The effort of laser ion acceleration now foresees an application to cancer research. The research of collective acceleration by laser may be extended to collective deceleration and, more broadly, to 'collective optics', utilizing the tremendous laser driven collective fields for beam optics for its control beyond just acceleration.
The expanding horizon of high field science will also be sketched.

This is the first of a series of 10 lectures as a 2009 Blaise Pascal Chair recipient.

Toshiki TAJIMA

Guest Professor at the Ludwig Maximilian, University of Munich and the Max Plank Institute for Quantum Optics

Jeudi 22 octobre 09

ÉCOLE POLYTECHNIQUE
Amphithéâtre Pierre Faurre

17 h 00
suivi d'un cocktail à 18 h 30

Chaires internationales de recherche Blaise Pascal

Financée par l'État et la Région d'Ile de France, gérée par la Fondation de l'École Normale Supérieure

www.enseignement.polytechnique.fr/physique/conferences.php