



Piezoelectricity: material properties for sensing and actuating

*Visiting Professor: François PIGACHE, (INPT - ENSEEIHT - LAPLACE Laboratory
(Electrical Power and Plasmas Laboratory, France)*

Short description of the lecture:

Piezoelectricity is everywhere in our daily applications: whether the gas lighters, quartz oscillators, strain gauges, the SAW / BAW filters, and numerous kinds of actuators and sensors. However this property remains unknown to the general public and this technology has not yet revealed all its capabilities. Materials science continues to improve the performances of these synthetic materials. These material improvements still lead to the development of new applications in electronics, mechatronics and electrical engineering. This course aims to firstly introduce the basic principles of the ferroelectric and piezoelectric materials. These properties are then illustrated in different applications. Sensors, actuators, energy harvesting systems are discussed, modeled from a functional point of view. Some current research activities will be presented.

Contents:

1. Piezoelectricity
2. Piezoelectric and Ferroelectric materials
3. Actuation
4. Sensor
5. Energy harvesting
6. Hamiltonian principle, Lagrangian approach for modeling



Terminy wykładów			
Data	Dzień tyg.	Godzina	Sala
2015-09-28	Pn	9.15-13.00	EiA E28
2015-09-30	Śr	9.15-13.00	EiA E28
2015-10-01	Cz	9.15-13.00	EiA E28
2015-10-02	Pt	9.15-12.00	EiA E28