# SEMINAIRE ISMO

**Justinas CEPONKUS**

*Dept. of General Physics and Spectroscopy, Vilnius University, Lithuania.*

## Application of Infrared absorption and Raman scattering spectroscopy in the medical diagnostics

Recent advances of infrared absorption and Raman scattering spectroscopic techniques encourage applications of these methods outside the scientific lab. One of the very promising fields of applications is medical diagnostics. Human beings are built up from molecules; therefore in principle we should be able to record the spectra and get the chemical information. Two different fields of application of vibrational spectroscopy in medicine can be distinguished: I) elucidation of chemical composition of inorganic malformations e.g. kidney stones and II) detection of tumor cells in the healthy tissue. Nowadays there are several available methods to record vibrational spectra of nontransparent substances such Raman spectroscopy or ATR (attenuated total reflection) techniques which with proper advertisement and suitable spectral libraries could easily become a standard procedure in diagnostics.

Much more complicated is the study of the human tissues. The spectra of healthy and timorous tissues consist of very large amounts of molecules and chemical differences are not very large, therefore spectral differences of these tissues are not very large as well. Several methods including statistical analysis, imaging and surface enhancement of Raman bands could be used in order to identify the differences between the healthy and tumor tissues. The merits and drawbacks of these methods and possible future applications will be discussed in the presentation.

**Mardi 17 novembre 2015 à 11h**

**Bât. 210 – Amphi 1 (2ème étage)**

***Université Paris-Sud 91405 ORSAY Cedex***