

Seminar

of the Department of Complex matter F7

Thursday, 24.10.2019 at 10:00

Seminar room F7

Symmetry forbidden Raman lines activated by photorefractivity of Fe- doped Lithium Niobate crystal

Prof. Ninel Kokanyan

*Laboratory of Optical Materials Photonics & Systems, CentraleSupélec,
Metz, France*

Lithium niobate (LN) has various advantageous properties such as large nonlinear optical coefficients, high transparency in the visible and near infrared range, technology for the manufacturing of waveguides and domain structures. It is widely used in various applications such as light modulation, frequency conversion, SAW sensors, photonic devices. LN, especially when doped with iron (Fe) shows another very remarkable property which is photorefractivity.

Transmission Raman spectra were recorded in photorefractive iron-doped LN crystal within a priori equivalent configurations, $Y(XZ)Y$ and $Y(ZX)Y$ showed completely different behaviors as function of time. In $Y(ZX)Y$ only $E[TO]$ modes are present in accordance with selection rules, while in $Y(XZ)Y$ configuration spectra showed a strong dependence on time with a rise of $A_1[TO]$ Raman modes. The intensity of the forbidden activated lines reveals a time evolution of the conversion from the o-polarization to the e-polarization after crossing the sample. The intensity ratio of activated $A_1[TO]^*$ and $E[TO_8]$ reflects the conversion efficiency as a function of time.

The lecture will be held in English.

Cordially invited to attend.

