

## Preparation and study of Graphene/LN heterojunction for sensorial application

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Due to their outstanding physical properties, graphene and related materials have a huge potential for applications in electronic and optical devices. In our research graphene layers are obtained by liquid phase exfoliation (LPE) method for the application in SAW sensors. On the other hand, stoichiometric lithium niobate (LN) is the best material for such applications, because of its piezoelectric character and unique physical characteristics. Synthesized in a colloidal solution, graphene layers are substituted to LN substrate and studied. As the fingerprint of graphene and other carbon nanomaterials, the spectrum of Raman scattering is measured and analyzed (Fig. 1).

Fig. 1 Raman spectrum of three layer graphene deposited on LN

The current-voltage characteristics of graphene deposited on LN are measured and studied using data acquisition devices and LabVIEW programming. The studies reveal the influence of screening effect on the electrical properties of graphene, because of high dielectric constant of LN crystal.

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