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Surface and Compositional Study of Graphene grown on Lithium Niobate ($LiNbO_3$) substrates by Chemical Vapour Deposition SHUMAILA KARAMAT, Middle East Technical University (ODTU), Ankara, Turkey, UMIT CELIK, Nanomagnetics Instruments, Ankara Turkey, AHMET ORAL, Middle East Technical University (ODTU), Ankara, Turkey — The diversity required in the designing of electronic devices motivated the community to always attempt for new functional materials and device structures. Graphene is considered as one of the most promising candidate materials for future electronics and carbon based devices. It is very exciting to combine graphene with new dielectric materials which exhibit multifunctional properties. Lithium Niobate exhibits ferro-, pyro-, and piezoelectric properties with large electro-optic, acousto-optic, and photoelastic coefficients as well as strong photorefractive and photovoltaic effects which made it one of the most extensively studied materials over the last 50 years. We used ambient pressure chemical vapour deposition to grow graphene on $LiNbO_3$ substrates without any catalyst. The growth was carried out in presence of methane, argon and hydrogen. AFM imaging showed very unique structures on the surface which contains triangular domains. X-ray photoelectron spectroscopy (XPS) was used to get information about the presence of necessary elements, their bonding with $LiNbO_3$ substrates. Detailed characterization is under process which will be presented later.

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