

Optimization of deposition parameters for thin film lithium phosphorus oxynitride (Lipon)

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Thin film of lithium phosphorus oxynitride (Lipon) was successfully deposited onto glass substrates by radio frequency (RF) magnetron sputtering technique from Li₃PO₄ target. The power of the target was 150 W and optimal deposition pressure of N₂/Ar ~3/1 was of 2 mTorr. Analysis of the film was done by AFM, FTIR and Raman spectroscopy, which showed incorporation of nitrogen into the film as both triply, N_t, and doubly, N_d, coordinated form. The impedance spectroscopy measurements was carried out and revealed the ionic conductivity of the sample to be $8.6 \times 10^{-8} \text{ Scm}^{-1}$ for optimum RF power and gas flow conditions. The electrochemical properties investigations and further development of this work will be presented at the Meeting.

Acknowledgements

This research was funded under the target program №0115PK03029 "NU-Berkeley strategic initiative in warm-dense matter, advanced materials and energy sources for 2014-2018" from the Ministry of Education and Science of the Republic of Kazakhstan.