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## SF2-0041

### BENEFITS OF EXFOLIATED GRAPHENE ON LITHIUM TITANATE BY BALL MILLING

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Energy reserves on earth have been a growing demand for energy uses. Alternatives of lithium-ion batteries (LIBs), was studied around the past years. The lower price and potential of sodium-ion batteries (SIBs) combined with the high chemical stability of lithium/sodium was analyzed. The combination of that materials adding exfoliated graphene; was studied on this work. Adding exfoliated graphene after milling time, into a high energy milling into SPEX 800 was performed. Benefits of milling time in the system were observed. Powders were mixed by (MA). X-ray diffraction (XRD) was studied and microscopy techniques.

**Keywords:** Ball Milling, Exfoliated Graphene, Lithium, Energy

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## SF2-0042

### COMPARATIVE STUDY OF THE OPTICAL AND STRUCTURAL PROPERTIES OF PHOTOLUMINESCENT BILAYERS OBTAINED BY CVD TECHNIQUES

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Luminescent materials based on silicon nanostructures have attracted a great effort to overcome the intrinsic disadvantages of bulk-Si to develop optoelectronic devices. Actually, the Silicon Off Stoichiometry ( $\text{SiO}_x$ ) and Hydrogenated amorphous Silicon Carbide ( $\text{a-Si}_{1-x}\text{C}_2\text{:H}$ ) have produced different reports to develop ultraviolet absorbers or silicon-based light emitters. SRO and  $\text{a-Si}_{1-x}\text{C}_2\text{:H}$  films can be deposited by several techniques, in particular  $\text{SiO}_x$  can be easily obtained by Low Pressure Chemical Vapor Deposition (LPCVD) and  $\text{a-Si}_{1-x}\text{C}_2\text{:H}$  by Plasma Enhanced Chemical Vapor Deposition (PECVD). In this work, we report a wide study of the optical and structural properties of  $\text{SiO}_x/\text{SiO}_y$  and SRO/ $\text{a-Si}_{1-x}\text{C}_2\text{:H}$  bilayers obtained by CVD techniques. Silicon excess in  $\text{SiO}_x$  was changed by controlling the pressure ratio  $R_0 = \text{N}_2\text{O}/\text{SiH}_4$  and Silicon carbide in  $\text{a-Si}_{1-x}\text{C}_2\text{:H}$  was controlled by pressure ratio  $a_0 = \text{CH}_4/\text{SiH}_4$ .  $\text{SiO}_x$  films required an annealing treatment in  $\text{N}_2$  at high temperature (1100 °C). Ellipsometry measurements were obtained  $\text{SiO}_x(\text{SiO}_y)$  and  $\text{a-Si}_{1-x}\text{C}_2\text{:H}$  single films to calculate the



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**TO WHOM IT MAY CONCERN**

P r e s e n t

This is to certify that *Claudia Georgina Nava Dino, Juan Pablo Flores de Los Ríos, Maria Cristina Maldonado Orozco, Roberto Narro García, Anabel de la Cruz Delgado, Roberto Bernal, Facundo Almeraya Calderón, Jesus Silva* presented the contribution: **BENEFITS OF EXFOLIATED GRAPHENE ON LITHIUM TITANATE BY BALL MILLING** as **Oral** modality, in the *F2. Advances In Functional Semiconducting Materials* Symposium at the **31st International Materials Research Congress** held in Cancun, Mexico from August 13th to 18th, 2023.

Sincerely,

**Jesús González Hernández**  
*President*

