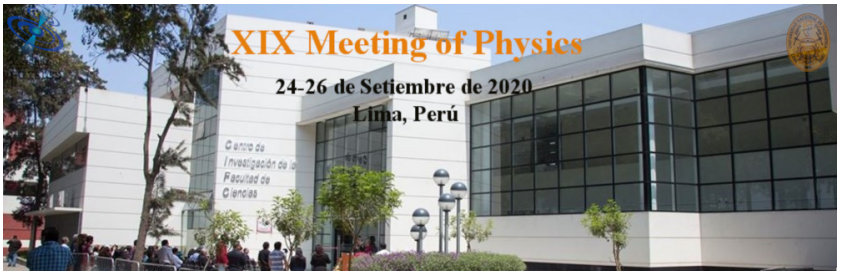

Contribution ID : **21** Type : **poster**

STRUCTURAL AND ELECTRONIC STUDY OF Cu2S THIN FILMS FOR THEIR POTENTIAL APPLICATION TO THE MANUFACTURE OF PHOTOVOLTAIC SOLAR CELLS

Friday, 25 September 2020 10:10 (10)

Remarkable progress has been made in the last years to the use solar energy as a renewable and clean energy source. In this regard, Cu2S is a promising material for solar cell devices due to their electronic and optical properties. In this work, polycrystalline Cu2S films were grown onto borosilicate glass substrates with different thicknesses tuning by the deposition time at room temperature using a DC sputtering method. The films were thermally annealed (TA) at temperatures of 100 ℃, 200 ℃, and 300 ℃ in a high vacuum chamber for 1 hours . XRD results revealed the presence of the chalcocite phase (Cu2S) in the as-grown film, meanwhile, covellite (CuS) and chalcocite phases were found in the TA films. Sheet resistance (Rs) exhibits a decrease as the thickness increases. Also, the thermal treatment in high vacuum improves the crystallinity and decreases the sheet resistance of the films. We believe that our findings are important and potentially useful to improve the properties of the films for technological applications.

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Session Classification : Poster session

Track Classification : Applied Physics