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**PHOTOELECTROCHEMICAL ACTIVITY OF
MAGNETRON SPUTTERED ZnO THIN FILMS:
ROLE OF THERMAL ANNEALING**

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ABSTRACT- This paper reports the effects of annealing temperature (varied from 250-450 °C) on the photoelectrochemical (PEC) efficiency of some highly dense zinc oxide thin films (ZOTFs) deposited on the indium tin oxide (ITO) substrate using RF magnetron sputtering method. The obtained TFs were characterized to determine their structures, morphologies, optical and PEC characteristics. The TF deposited at the photocurrent density of 0.034 mA cm⁻² and photoconversion efficiency (0.026%) annealed at 400 °C for 1 hour was the optimum. Results from FESEM showed that the surface of the ZOTFs nanoparticles was very compact, with 17.75 nm at 400 °C being the lowest particle size.

Keywords: RF Magnetron Sputtering, ZOTFs, Photoresponse, Photoelectrode, Photoconversion efficiency.