

## Formation of Amorphous Iron Thin Films during Electrodeposition

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In this study, the crystallographic structure transition of iron thin films during electrodeposition (using a rectangular pulse current at a rate of 2 MHz) was investigated using X-ray diffraction (XRD). The mean grain size estimated by the Scherrer equation reached a minimum value for a specific amplitude and duty cycle of the rectangular pulse current; moreover, the minimum grain size decreased with the deposition temperature. The present XRD analysis demonstrated the deposition of amorphous iron films at temperatures  $\leq 295$  K and duty cycles  $\geq 40\%$ .

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**Keywords:** Amorphous iron thin film, Rectangular pulse current, Mean grain size, Scherrer equation

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