

ABSTRACT

APPARATUS AND METHOD FOR UNIFORM METALLIZATION ON SUBSTRATE

An apparatus and method for uniform metallization on substrate are provided, achieving highly uniform metallic film deposition at a rate far greater than a conventional film growth rate in electrolyte solutions. The apparatus includes an immersion bath (3021), at least one set of electrode (3002), a substrate holder (3003), at least one ultra/mega sonic device (3004), a reflection plate (3005), and a rotating actuator (3030). The immersion bath contains at least one metal salt electrolyte (3020). The at least one set of electrode (3002) connects to an independent power supply. The substrate holder (3003) holds at least one substrate and electrically connects with a conductive side of the substrate. The conductive side of the substrate is exposed to face the electrode. The at least one ultra/mega sonic device (3004) and the reflection plate (3005) are disposed parallel for generating ultra/mega sonic standing wave in the immersion bath. The rotating actuator (3030) rotates the substrate holder (3003) along its axis in the standing wave field, so as to result in a uniform overall power intensity distribution across the substrate in an accumulated time.

FIG 3