

OR1102

Sputter Deposition at Atmospheric Pressure

Roland Gesche¹, Christian Bansleben¹, Horia-Eugen Porteanu¹, Silvio Kühn¹,
Reinhold Kovacs², Joachim Scherer²

¹Ferdinand-Braun-Institut, Berlin, Germany ²Aurion Anlagentechnik GmbH,
Seligenstadt, Germany

roland.gesche@fbh-berlin.de

A sputter deposition process working at atmospheric pressure is demonstrated. Argon is ionized at atmospheric pressure by a microwave microplasma source. A metallic gold target is placed close to the discharge and biased by a dc power supply. The V/I characteristics of the target to ground impedance show a stable behavior up to some hundreds of volts and some mA before it changes to an instable arc regime. In this stable region, ion flow and ion energy are suitable for sputtering. Target material is sputtered and the gold can be detected on a glass substrate placed close to the target.

This proves the principal possibility to realize sputter deposition processes under atmospheric pressure for the first time. A first application can be a localized small-area metallization of insulating materials. Further developments and opportunities are discussed.

Keywords

Atmospheric plasma

Sputtering