

POC011

**NEW REACTIVE SPUTTERING PROCESSES WITH  
BIPOLAR-PULSE-SYSTEMS**Holger Rückert<sup>1</sup>, Dieter Wurczinger<sup>2</sup>, Ralf Comtesse<sup>1</sup><sup>1</sup>ADL GmbH, Darmstadt, Germany <sup>2</sup>Ingenieurbüro Wurczinger Engineering, Bad  
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In terms of sputtering, high-resistance or insulating sputter-layers are very demanding. Reliability, long-term stability and reproducibility are still a challenge.

The layers have important functions and become more and more interesting; electrical, optical, decorative, wear and diffusion inhibiting properties that are of great importance to the user. Reaction materials such as Oxides (SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, TiO<sub>2</sub>, ...), Nitrides (Si<sub>3</sub>N<sub>4</sub>, AlN, TiN, ...), Borides and others are in focus. New bipolar pulse-systems offer the solution.

Bipolar pulse-systems can deliver absolutely constant voltage pulses. Every pulse energy can be regulated exactly, there are no critical overshoots and the ratio "on-off" can be adapted to the process. In particular, fast arc shutdown with the lowest arc energy continues to be a very important factor. Excellent and best reproducible layers are the result.

If there are still many reactive layers with a sine wave frequency today, the use of bipolar pulse-systems increases significantly due to their advantages. The lecture reports on the use of bipolar pulse-systems with their clear advantages in reactive sputter deposition for best layer performances.

**Keywords**

Bipolar-Sputtering

Reactive-Sputtering

Pulse-Energy

Pulse-Advantages

Pulse-System-Solution