

Die Bestimmung des Energieeinstroms bei Sputterprozessen (On the determination of the energy influx at sputter processes)

Abstract

A summary is given on the determination of the energy influx and its influence on the thermal balance and energetic conditions of substrate surfaces during plasma sputter processing. The discussed mechanisms include heat radiation, kinetic and potential energy of charged particles and sputtered neutrals.

For a few examples as magnetron sputtering of a-C:H films and sputter deposition of aluminum on micro-particles the energetic balance of substrates during plasma processing are presented.

Introduction

Plasma surface interactions are of great importance in a large variety of applications of low-temperature, low-pressure plasmas in such fields as etching, thin film deposition and surface modification. In these processes the thermal and energetic conditions at the substrate surface play a dominant role. Low temperature plasma processing of solid surfaces is mainly affected by the energy flux density (J), representing a key parameter for the energetic conditions at the surface, and the temperature of the substrate surface (T_s), which results from the several energy fluxes between

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