
17:00 OTU-93

Do negative ions matter in pulsed laser deposition?
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Pulsed laser deposition (PLD) is nowadays acknowledged as an excellent technique for the growth of nanostructures and complex oxides thanks to its versatility as well as its possibility for working in a wide range of ambient gas pressure. The nucleation and growth process as well as the final properties of the films depend very much on the nature and kinetic energies of the species arriving to the substrate. Ions are generally the more energetic species and are found responsible for the high mobility or sputtering effects at substrate level. However, only positive ions are usually referred to as ions. The aim of this contribution is to explore if negative ions are significant in
the PLD process, i.e. if their relative amount with respect to positive ions and neutrals is significant, if their kinetic energies are comparable to positive ions or if they arrive to the substrate. For this study, we have selected a simple oxide ceramic target (Al₂O₃) formed by a low mass metal. We have used a HAL EQP/EQS Analyzer, equipped with a high-transmission 45° sector field ion energy analyzer and quadrupole mass spectrometer from Hiden Analytical. Several ionic species have been identified in the plasma, i.e. O⁺, O⁻, O₂⁺, O₂⁻, Al⁺, Al³⁺, AlO⁺, AlO⁻, AlO₂⁻, and their relative proportion and kinetic energy distribution as a function of distance to target and fluence will be discussed and compared to the evolution of the corresponding neutral.

Session 4
Chair: I. Zergioti

17:30 ITU-358
LASER PRINTING AND TWO-PHOTON POLYMERIZATION