

# **Morphological properties of thin films deposited by pulsed laser ablation**

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## **Abstract**

In this work we report on obtaining zirconia thin films by radio-frequency assisted pulsed laser deposition (RF-PLD) of Zr or ZrO<sub>2</sub> targets in oxygen reactive atmosphere or vacuum, on silicon substrates. Zirconium oxide is a material with a large area of applications in electronics and electrical engineering industry because of its high stability and high dielectric constant. These properties make possible the replacement of SiO<sub>2</sub> for the gate dielectric material in metal-oxide-semiconductor (MOS) devices. The influence of the deposition parameters as target composition, oxygen pressure, laser fluence, substrate's temperature and RF power on the morphology of the deposited layers was studied. Atomic force microscopy technique was used to investigate the morphology of the thin films.

**Keywords:** Zirconia, thin films, PLD, AFM