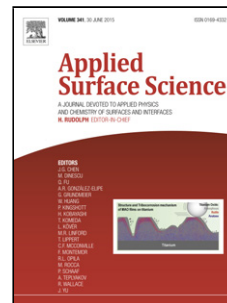


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Influence of laser pulse frequency on the microstructure of Aluminum Nitride thin films synthesized by Pulsed Laser Deposition

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Highlights

- Study of pulsed laser deposited AlN films at different laser pulse frequencies.
- Higher laser pulse frequency promotes nanocrystallites formation at temperature 450 °C.
- AFM and GIXRD detect randomly oriented wurtzite AlN structures.
- Characterization of the nanocrystallites' orientation by FTIR reflectance spectra.
- Berreman effect is registered in p-polarised radiation at large incidence angles.

Abstract

Aluminum Nitride (AlN) thin films were synthesized on Si (100) wafers at 450 °C by pulsed laser deposition. A polycrystalline AlN target was multipulsed irradiated in a nitrogen ambient, at different laser pulse repetition rate. Grazing Incidence X-Ray Diffraction and Atomic Force Microscopy analyses evidenced nanocrystallites with a hexagonal lattice in the amorphous AlN matrix. The

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