

# Characterization of nanoparticles deposited on a thin film by using femtosecond pulse laser

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In a homemade vacuumed metallic chamber with Plexiglas windows, is placed a plate containing ZnO. A metallic plate is placed in front of the plate containing ZnO molecules. Femtosecond laser pulses are used in a procedure of the deposition of the ZnO nanoparticles in a thin film. A new procedure, applied at this experiment, made possible a thin film characterized with a homogeneous particle deposition.

Characterization of the film is performed by several techniques. Using an atomic force microscope (AMF) thickness, texture of the surface and roughness were visualized. Scanning electron microscope and-ray diffraction, were used to characterize the thin film layer of nanoparticles. Using the UV-VIS, the bandgap energy of the zinc oxide film was determined.

Keywords: Nanoparticles, Femtosecond laser, Thin film, AMF, ZnO