

IAF MATERIALS AND STRUCTURES SYMPOSIUM (C2)
Interactive Presentations - IAF MATERIALS AND STRUCTURES SYMPOSIUM (IP)

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APPLIED ELECTRIC FIELD ON IMPROVED SMART OPTICAL MATERIAL (SOM),
ALUMINUM-DOPED ZINC OXIDE (AZO), CHARACTERIZED BY MODIFIED VARIABLE ANGLE
SPECTROSCOPIC ELLIPSOMETER (VASE) AND INFRARED (IR) CAMERA FOR SPACE
APPLICATIONS - PART II

Abstract

Smart Optical Materials (SOMs) also known as Field Controlled Smart Active Optics (FCSAO) were originally developed at the National Aeronautics and Space Administration (NASA) in Langley's Research Center (LaRC) in Hampton, Virginia. SOMs are dynamic multifunctional materials that can be tuned upon the application of an external stimulus.

A gradient thin film of Aluminum Doped-Zinc Oxide created at Norfolk State University by Atomic Layer Deposition was simulated by J.A. Woollam's WVASE software and an improved thin film of AZO was obtained.

Here the fabrication process of the Aluminum Doped-Zinc Oxide is discussed and the characterization of the optical properties of the Atomic Layer Deposited SOM, AZO, are characterized by modified Variable Angle Spectroscopic Ellipsometer (VASE) and IR camera to analyze and see if there was an overall improvement in the gradient thin film after obtaining new composition from WVASE Simulation.