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Advanced Deposition Techniques
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OPTICAL AND ELECTRICAL CHARACTERISTICS OF ZIRCONIUM OXIDE THIN FILMS DEPOSITED ON SILICON SUBSTRATES BY SPRAY PYROLYSIS

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The optical and electrical characteristics of zirconium oxide thin films deposited by spray pyrolysis on silicon substrates are reported. The films were deposited from a spraying solution of zirconium acetylacetonate in N,N-dimethylformamide using an ultrasonic mist generator on (100) Si substrates. The substrate temperature during deposition was in the range of 400 to 600º C. Deposition rates up to 16 Å/sec were obtained depending on the spraying solution concentration and on the substrate temperature. A refraction index of the order of 2.0 was measured on these films by ellipsometry. The electrical characteristics of the films were determined from the capacitance and current versus voltage measurements. The addition of water mist during the spraying deposition process was also studied in the characteristics of the films.
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