

Sifat optis lapisan tipis cadmium sulfida yang dibuat dengan CO-evaporasi CdS dan sulfur

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Abstrak

The Optical Properties of Cadmium Sulfide Thin Films Prepared by co-evaporation Deposition Methods of CdS and Sulfur. Cadmium Sulfide Thin Films have been deposited by thermal co-evaporation methods of CdS + S. The films were prepared on glass substrate and were varied by changing these deposition rates into 4-16 AIs. The thickness of the films and the real part of refractive indexes have been determined based on interference method using maximum and minimum of reflectance spectrum. The optical parameters a of these films have been determined by reflectance and transmittance spectrum using Hishikawa formulation of $T/(1-R)$. The real part of refractive index and optical parameter a reduce with the higher deposition rate for transparency region - ($E < 2.6$ eV). The optical gap almost did not show a certain tendency by deposition rate variation. The complex dielectric functions of these films reflect the real part of refractive indexes and extinction coefficients.

<hr>Lapisan tipis CdS telah dideposisi dengan metode co-evaporasi termal CdS+S. Lapisan tipis dideposisi di atas substrat kaca dan divariasikan laju deposisinya 4 -16 AIs. Ketebalan dan indeks bias lapisan tipis ditentukan berdasarkan prinsip interferensi dengan menggunakan maksimum dan minimum spektrum reflektansi. Parameter optis a lapisan tipis ditentukan dari spektrum reflektansi dan transmitansi dengan menggunakan formulasi Hishikawa $T/(1-R)$. Indeks bias riil dan parameter optis a berkurang dengan meningkatnya laju deposisi di daerah transparan ($E < 2.6$ eV). Gap optis tidak menunjukkan kecenderungan tertentu dengan variasi laju deposisi. Fungsi dielektrik kompleks lapisan tipis CdS mewakili indeks bias riil dan koefisien ekstingsi.