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A method for getting the absorption spectrum from the interference fringes of a thin film P.K. LIM, W.K. TAM, K.K. NG, Department of Physics, Hong Kong Baptist University, Kowloon Tong, Hong Kong — In measuring the absorption spectrum of a weak absorbing thin film, one always faces the problem of detecting a small signal buried in background noises, which is further complicated by the interference effect and the reflection lost at the surface. The way for extracting absorption spectrum from experimental data is usually quite involved. We have carefully studied the interference fringes of a thin film and have come up with a method to obtain the weak absorption spectrum from the amplitude of the interference fringe of a thin film. The method is less tedious and in certain extent eliminates the background noises and the intensity instability of the light source. The method has been successfully applied to obtain the absorption spectrum of an amorphous silicon thin film.

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