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Preliminary results of absolute thickness measurement using optical comb interferometry

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Non-contact absolute thickness measurement is necessary especially to delicate specimen or optics where deformation and scratch must be avoided. The absolute thickness of a specimen can be measured using various optical methods but the refractive index of the specimen shall be pre-determined with high accuracy. In this paper, we applied an optical-domain interferometer using an optical frequency comb as a light source and a spectrum analyzer as a detector. Preliminary results on thickness measurement of a single glass plate and a stacked glass plate are reported here. The key advantage of this technique is that the knowledge of refractive index is not required. This method shows promising possibility for measuring absolute thickness of a multi-layer specimen such as wafer.

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